

GENERAL LIBRARY
OCT - 2 1919
UNIV. OF MICH.

MUNICIPAL JOURNAL AND PUBLIC WORKS.

CITY

COUNTY

STATE

VOLUME XLVII
No. 13

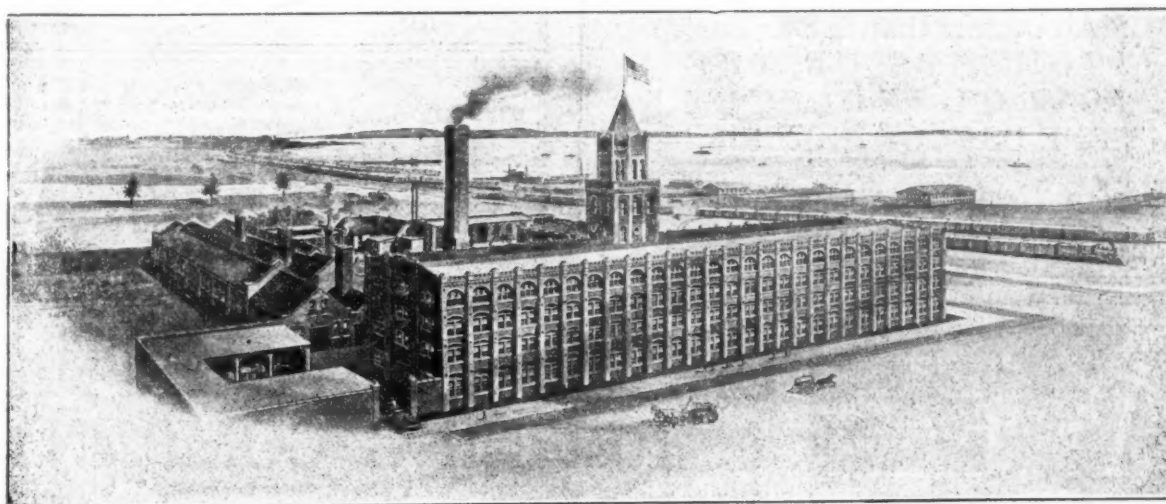
New York, September 27, 1919

Weekly—\$3.00 a Year
10 Cents a Copy

Entered as second-class matter January 3, 1906, at the Post Office at New York, N. Y., under the Act of March 3, 1879.

Anticipate
Your

FORESIGHT WATER METER Requirements



THE PLANT BEHIND THE PRODUCT

ONE MILLION FIVE HUNDRED THOUSAND

Crown, Empire, Nash, Gem, Empire Compound and Premier
Water Meters sold throughout the world. All sizes
always in stock. Send for descriptive catalogue.

NATIONAL METER CO.

ESTABLISHED 1870

299 BROADWAY, N. Y. CITY

Chicago, Boston, Pittsburgh, Cincinnati, Atlanta, San Francisco, Winnipeg, London



**ASPHALT PAVING
PLANTS ALL KINDS**
PORTABLE DRYERS
PORTABLE KETTLES
FIRE WAGONS, ETC.
THE HETHERINGTON PLANTS

HETHERINGTON & BERNER

INDIANAPOLIS, INDIANA, U. S. A.

Asphalt Sales Dept.
OFFICES

| | |
|--------------|-------------|
| New York | Houston |
| Boston | Chicago |
| Philadelphia | Cleveland |
| Richmond | Toledo |
| Jacksonville | Kansas City |
| Tampa | Des Moines |
| New Orleans | Minneapolis |
| Memphis | Wichita |

TEXACO ASPHALT
ROAD OILS
THE TEXAS COMPANY

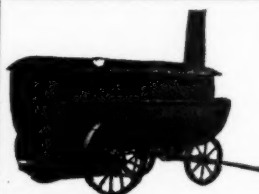
Asphalt Sales Department
17 BATTERY PLACE, NEW YORK CITY



**INDIAN ROAD
OILS**

MANUFACTURED BY THE
PIONEERS OF THE
ROAD OIL INDUSTRY
SEND US YOUR INQUIRIES

Indian Refining Company, Inc.
244 Madison Ave., New York, N. Y.



**Littleford Portable
TAR AND ASPHALT
HEATERS AND DRIERS**
Famous For Their
STRENGTH, DURABILITY and
EFFICIENCY
LITTLEFORD BROS.
CINCINNATI, O.

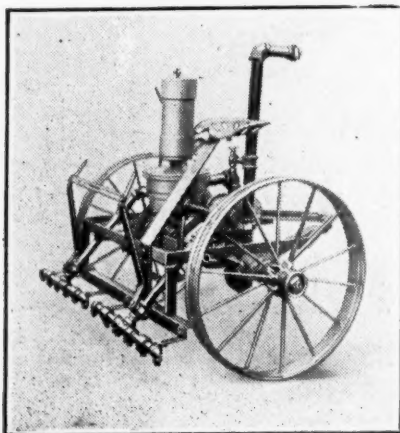
WYCKOFF PIPE & CREOSOTING CO.
30 East 42d St., NEW YORK
Send for Catalogue "D"

CREOSOTED WOOD BLOCKS
WYCKOFF
CONDUIT for WILL NOT BUCKLE OR DECAY
underground wires, and
all forms of creosoted wood;
also Wooden Water Pipe and Steam Pipe
Casings. Creosoting Works and Factory: Portsmouth, Va.



THE
**UNITED STATES ASPHALT
REFINING COMPANY**

90 West Street, New York



FOR ROAD OILING

USE A RELIANCE OIL SPRAYING TRAILER

It is not necessary to own an expensive oiling wagon—our trailer will
do the work exactly as well with ONE-HALF the investment.

Will save its cost in one season

Let us quote you prices

UNIVERSAL ROAD MCHY. CO.
KINGSTON, N. Y.

RELIANCE LABOR SAVING ROAD BUILDING EQUIPMENT

Municipal Journal & Public Works.

City

County

State

Published Weekly by MUNICIPAL JOURNAL & ENGINEER, INC., at 243 West 39th Street, New York
S. W. HUME, President J. T. MORRIS, Treasurer A. PRESCOTT FOLWELL, Secretary

Vol. XLVII

NEW YORK, SEPTEMBER 27, 1919

No. 13

Subscription Rates

United States and possessions, Mexico and Cuba..... \$3.00 per year
All other countries..... \$4.00 per year

Entered as second-class matter, January 3, 1906, at the Post Office at New York, N. Y., under the Act of Congress of March 3, 1879.

Change of Address

Subscribers are requested to notify us of changes of address, giving both old and new addresses.

Telephone (New York): Bryant 9591
Western Office: Monadnock Block, Chicago

A. PRESCOTT FOLWELL, Editor
SIMON BARR, Assistant Editor

Contributed Articles and Reports

Contributions suitable for this paper, either in the form of special articles or as letters discussing municipal matters, are invited and paid for.

City officials and civic organizations are particularly requested to send to Municipal Journal and Public Works regularly their annual and special reports.

Information Bureau

The Information Bureau, developed by twenty-one years' research and practical experience in its special field, is at the command of our subscribers at all times and without charge.

Contents of This Issue.

| | |
|---|-----|
| Editorial Notes | 195 |
| Possible Delay in Future Issues—An Endowment Fund for Boston Tech.—Fellowships in Highway Engineering..... | |
| Resurfacing Old Brick Pavement (Illustrated)..... | 196 |
| A pavement in White Plains, N. Y., twenty-three years old is being resurfaced with bitulithic. The details are given in this article. | |
| Spanish Engineer Desires Municipal Reports..... | 198 |
| Contractors' Bonds for New York Highway Work..... | 198 |
| Change from Private to Municipal Ownership..... | 198 |
| Highways Transport Committee Discontinued..... | 198 |
| Bituminous Treatment of Private Roads..... | 199 |
| A Sewage Treatment Experiment..... | 199 |
| A new screen and modifications of the activated sludge method. | |
| Street Cleaning and Refuse Collection in Newark (Illustrated) | 200 |
| Frequency, vehicles used, and records employed in keeping track of all features of the service. | |
| National Conference on Public Ownership..... | 202 |
| Watershed Run-Off in Ontario..... | 203 |
| Figures for run-off from forty-eight watersheds. | |
| Pennsylvania Townships Receive Arrears in Road Aid.... | 203 |
| The Week's News..... | 204 |
| News of the Societies..... | 207 |
| Industrial News | 208 |
| Personals | 208 |
| Contract News | 15 |

POSSIBLE DELAY IN FUTURE ISSUES.

As we go to press, indications are that practically all of the printers in New York City whose presses turn out periodicals and books will be closed by a strike of their employes after October 1. It is probable, therefore, that Municipal Journal & Public Works, like all other periodicals published in this city, will be unable to get out promptly the one or two issues following this one, and it takes this opportunity of asking its readers and advertisers to make allowances if the next few numbers do not reach them promptly.

Subscribers may rest assured, however, that we will do out best to make this interruption in service as brief as possible and make up for it by the increased excellence of future issues when they do appear.

AN ENDOWMENT FUND FOR "BOSTON TECH."

Last spring, when most American institutions of collegiate grade had an attendance of only half to two-thirds normal, the Massachusetts Institute of Technology had more students than ever before, and the freshman class was almost double the old standard class. Fifty per cent of the applicants for the recently offered K. of C. scholarships for A. E. F. men were for training in engineering, the majority expressing a preference for "Boston Tech." Registrations for the present term have broken all records, and today the increased demand for the Tech type of education is taxing the entire M. I. T. capacity. There is no doubt about it, the war has put a premium upon technical education.

To the casual thinker it might seem that a great influx of students spells financial prosperity for the Institute, but this is not the case. In addition to the maintenance of buildings, it costs Technology \$500 in round numbers to give a student a year's education. The tuition fee has recently been raised from \$250 to \$300 and the Institute has decided that it must not be raised again. Even this moderate fee bars the way for some young men who ought to have a technical education.

But although the tuition fee cannot go up, the cost of an M. I. T. education cannot come down—indeed, like everything else, it is mounting still higher. It is no longer possible to secure a good professor at a salary that a truck driver would disdain. Laboratory equipment is essential and expensive, but at present the increase in professors' salaries is even more vital than that.

The Massachusetts Institute of Technology believes that the best solution of this problem is an endowment fund. An adequate endowment will enable the Institute to cope with the high cost of living and to expand with

its present opportunity. A "mysterious Mr. Smith" has started the ball rolling with a promise of \$4,000,000 provided another \$4,000,000 is raised by the alumni and friends of the Institute. "Mr. Smith" is not a Tech. man, but he is a firm believer in the Tech. type of education and its vital importance to the industrial America of the future.

Massachusetts Institute of Technology has for years been the leader in the education of men for municipal service. Perhaps the majority of men in public health work and sanitary engineering are alumni of this institution. Municipal and other governmental officials are therefore especially interested in the success of this movement to assure for the future not only the continuance of the work that has made it world-famous, but also an enlargement of its scope of usefulness.

FELLOWSHIPS IN HIGHWAY ENGINEERING.

Two fellowships in Highway Engineering are offered by the University of Michigan, which will be awarded about October 10th.

The Detroit Edison Fellowship in Highway Engineering.—The Detroit Edison Company announced, under

date of August 16, 1919, the renewal of a fellowship suspended during the war. This fellowship pays the holder \$500 per year, with an allowance of \$100 for expenses. It will be continued for the years 1919-1920 and 1920-1921. The investigation will be the subject of Moderate-Cost Country Roads.

The R. D. Chapin Fellowship in Highway Engineering.—On August 29th, R. D. Chapin of Detroit, president of the Hudson Motor Car Company, renewed the fellowship given by him prior to the war. This fellowship is offered to provide for the study of hard-surface roads and pavements. It pays the sum of \$500 to the holder, with an allowance of \$100 for expenses. It is available for the year 1919-1920.

Appointments of 1919-1920 Fellows have not been made. All candidates applying up to October 10th will be considered. A Fellow must have a Bachelor's degree in Civil Engineering from a college of recognized standing, he must enroll as a candidate for the degree of Master of Science in Engineering and be in residence at the University for eight months.

The above information is furnished by Prof. Arthur H. Blanchard, who has recently been made professor of highway engineering at the University of Michigan.

RESURFACING OLD BRICK PAVEMENT

One Twenty-three Years Old in White Plains, N. Y., Being Covered with Two Inches of Bitulithic—Method of Preparing Old Pavement for New Surface—Handling Traffic During Construction.

In the larger cities and most of the smaller ones, a considerable percentage of the streets have now been paved with more or less durable pavement and the problem that is becoming increasingly more important is that of repairing or renewing surfaces of the pavements as they wear out. Municipal Journal and Public Works has already described methods of resurfacing stone block pavement and the various bituminous ones. In this article we will describe a method being employed for renewing the surface of a worn brick pavement.

The work in question is being done in the village of White Plains, which is the county seat of Westchester county, N. Y., and is located halfway between Long Island sound on the east and the Hudson river on the west and is 22 miles north of New York City. A large percentage of the citizens of the village and the surrounding county own their own automobiles, many of the wealthy New Yorkers whose homes are located on the "Westchester knobs" having from one to three cars each. In addition to these, on every pleasant day thousands of New Yorkers in heavy touring cars use the highways of the county, while motor trucks of the light delivery type, the medium heavy truck used for department store delivery, and the heaviest ones used by contractors, are seen in great numbers. Altogether, it is probable that the highways of this county carry a heavier motor traffic than those of any other in the United States.

Most of the improved and heavily traveled highways are those leading north from New York. There is only one direct highway east and west across the county, connecting the Boston post road on the sound with the Albany post road which follows the Hudson river. This connecting link passes through White Plains, and Main street of that village forms a part of this highway. It is apparent, therefore, that this street is subjected to a much more severe use than are similar streets in most cities of the same population—20,000.

Cars from four lines pass over this street to and from the railroad station, running on a twenty-minute schedule each way, or averaging ten minutes apart. This is

the principal business street of the village, and on it are all the retail stores and banks and the county courthouse. On account of the narrow roadway, automobiles are prohibited from parking more than six inches away from the curb, but even so, the space available between these and the passing street-cars requires careful driving.

In 1896, twenty-three years ago, when the population was about 9,000, a brick pavement was laid in this street on a six-inch concrete foundation. The roadway is only 33 feet wide and a single-track streetcar line runs through the centre of it, leaving about 14 feet between the track and each curb. As automobiles are continually standing along the curbs, this means that most of the traffic is confined to a 7-foot strip between the parked automobiles and the track—a condition that is known to produce the most intensive wear. In spite of this, this brick pavement has continued to give good service for twenty-three years, with occasional repairs at different points. The wear, however, has increased in rapidity with the development of traffic and in some places the bricks had worn down to a thickness of only one inch.

By the end of last year the condition of this pavement was such that it was necessary to either remove all of the old brick surface and put down a new pavement, or cover the old pavement with a new surfacing material. Commissioner of Public Works, W. H. Lyon, decided that the most economical and practical thing to do was to resurface over the old brick, it having been found by levels on the roadway that it would be possible to put a two-inch surface over most of the area of the present roadway and still leave a four-inch face of curb between the top of the curb and the pavement. In order to do this, however, considerable work was required to prepare the old brick pavement to receive the new surface. A contract for this work was let to Warren Brothers Company and the work was begun on Aug. 6 of this year and will probably be finished by Sept. 30; the unusual number of rainy days during August and September alone preventing its having been completed two weeks earlier.

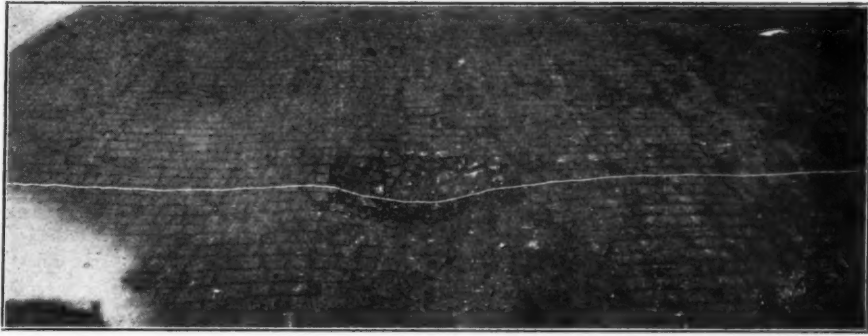
The space between the rails of the street car track had

been renewed with brick a few years ago and is still in good condition, and the resurfacing now being done is confined to the portions of the roadway between the track and the curbs. The length of street which is being resurfaced is three thousand feet.

In performing the contract, the contractors have left one side of the street always open for traffic, completing the resurfacing for the entire length of one side before beginning on the other. In addition, only two rather short blocks are closed to traffic at a time, thus limiting to that distance the interference with traffic on that side of the roadway.

The surfacing is of bitulithic and two inches thick throughout. Where the old pavement contains depressions extending more than three inches below the finished surface, these depressions are filled with concrete brought up to two inches below finished grade. Where the depressions are between two and three inches below finished grade, they are filled with an asphaltic binder. Where the old surface extends above the two-inch grade, the old brick are removed entirely and the space filled with concrete brought up to the desired surface.

Along each side of the car track for a distance of two feet out from the rails, the old brick are removed entirely. The web space in the rails had been filled with concrete when the brick pavement was laid, and in general this web filling is still in good condition, but where necessary it is repaired with new concrete. Following this, two rows of creosoted wood blocks are laid along the rail as liners, being set in cement mortar on top of the old foundation, which mortar is generally about one inch thick. A cement grout composed of one cement to two



CORD RESTING ON SURFACE SHOWS UNEVENNESS OF OLD PAVEMENT.

sand is poured into the joints and brushed in. The outside vertical faces of the wood blocks are painted with asphalt, and the remainder of the two-foot strip, between the wood blocks and the old brick surface, is then brought up to two inches below grade with concrete.

When this work has been completed, there is a space about 13 feet wide between the wood block liners and the curb which has an approximately uniform surface two inches lower than the finished grade of the street. The bitulithic is laid on this surface in the ordinary way. It is mixed at a plant located at Larchmont, seven and a half miles distant and is brought to the job in five-ton motor trucks. These trucks are hired from local owners at \$30 a day with the understanding that each truck shall bring four loads, making the cost of hauling \$1.50 a ton. The contractor estimates that this is cheaper than hauling it with teams.

On reaching the street, the material is dumped upon the prepared roadway and is spread by hand, all of the dumped material being rehandled. Along the curb and the car track it is tamped by hand, following which the whole surface is rolled with a 12-ton Buffalo-Pitts roller



ON THE RIGHT, STREET READY FOR SURFACE MATERIAL. ON THE LEFT, NEW SURFACE COMPLETED AND IN USE



LAYING WOOD BLOCK LINERS AND SWEEPING GROUT INTO THEIR JOINTS.

until it is cold. Traffic is turned onto each stretch of completed pavement four hours after the rolling has stopped.

The contract price for this pavement was \$2.50 per square yard, this including all of the preparation of the old brick pavement above described as well as the application of the new surface.

CONTRACTORS' BONDS FOR NEW YORK HIGHWAY WORK.

The legislature of New York State this year amended the highway law so as to provide for changes in that part relating to proposals, bonds and payments.

Under the new law, "Accompanying each proposal there shall be a draft or certified check for three per centum of the amount of the gross sum bid, which check, in case such proposal be accepted, shall be retained by the state commission of highways until the contract, and the bond hereinafter provided for, shall have been duly executed, whereupon such check shall be returned to the bidder. In case the bidder to whom the contract shall be awarded shall fail to execute such contract and bond, the moneys represented by such draft or certified check shall be regarded as liquidated damages and shall be forfeited to the state and shall be deposited by the commissioner with the state treasurer to the credit of the fund available for the construction of said highway; *provided, however, that should the bidder request the commission to dispense with a bond as provided in subdivision seven of this section, such check shall be retained by the commission until fifteen per centum of the work under the contract has been accomplished, as determined according to the estimates from time to time approved by the commission as a basis for payments on the contract, and should the bidder to whom the contract shall be awarded fail to execute such contract or fail to progress the work embraced within such contract until such time as fifteen per centum of the work shall have been accomplished, the moneys represented by such draft or certified check shall be regarded as liquidated damages and shall be forfeited to the state and shall be deposited by the commissioner with the state treasurer*

to the credit of the fund available for the construction of said highway. The proposals when opened shall be subject at all reasonable times to public inspection, and at the time of opening shall be publicly read and conspicuously posted in such a manner as to indicate the several items of the proposal.

"7. Bond of contractor. Unless a bond be dispensed with as hereinafter provided, each contractor, before entering into a contract for such construction or improvement, shall execute a bond in the form prescribed by the commission, with sufficient sureties, to be approved by the commission, conditioned that he will perform the work in accordance with the terms of the contract, and with the plans and specifications, and that he will commence and complete the work within the time prescribed in the contract; *provided, however, that the commission shall, at the time of the execution of the contract, upon the written request of the contractor, dispense with the giving of said bonds; but in any such case twenty per centum of the contract price shall be retained until the entire work has been completed and accepted.* The bond, if given, shall also provide against any direct or indirect damages that shall be suffered or claimed on account of such construction or improvement during the time thereof, and until the highway is accepted.

"8. Payments on contract. The contract may provide for partial payments to an amount not exceeding ninety per centum, or in a case where the bond is dispensed with, eighty per centum, of the value of the work done, which shall be paid in the manner provided by this article, when certified to by the commission. Ten per centum of the contract price, where a bond approved by the commission is given, and twenty per centum in case said bond is dispensed with, shall be retained until the entire work has been completed and accepted."

HIGHWAYS TRANSPORT COMMITTEE DISCONTINUED.

The Highways Transport Committee, which was established by the United States Council of National Defense as a necessary adjunct to its war-time activities, has been discontinued as of Sept. 15, 1919.

The Highways Transport Committee was continued through the readjustment period up to Sept. 15 in order that such of its work as was initiated under war-time conditions might be tapered down to a point where it could properly be closed. The chief reasons for dissolving the committee were necessary curtailment of expenditures and the apparent fact that the war-time functions of the committee did not with sufficient explicitness fall within the peace-time activities of the Council, as laid down by the congressional act creating it.

Certain surveys, more recently initiated by the committee, logically related to the permanent research work of the Council, are being continued. The Council, by order of the President, recently took over the records and files of the War Industries Board, originally created by the Council, and of the Committee on Public Information. All of this material will be studied, and, where practicable, kept up-to-date in so far as it bears on the national defense.

CHANGE FROM PRIVATE TO MUNICIPAL OWNERSHIP.

Under the title "One Hundred Reasons why One Hundred Cities Have Changed from Private to Municipal Ownership of Their Public Utilities," Burns & McDonnell, consulting engineers, have published a pamphlet of sixteen pages which give, in brief paragraphs and quotations, ideas on the subject which should be of great interest to all cities whose utilities are now privately owned. A copy of this pamphlet will be sent to anyone interested in the subject. The address of the firm is Interstate Building, Kansas City, Mo.

SPANISH ENGINEER DESIRES MUNICIPAL REPORTS.

The city engineer of Barcelona, Spain, Jose Me de Lasarte, has been asked by the president of the city council of that city to endeavor to secure copies of technical reports issued by American municipalities for the use of the city council development committee, in order that it may become more familiar with American municipal practice. We believe it is the intention of the council to send their own municipal reports in exchange. Cities are asked to send the reports to the Ayuntamiento de Barcelona, Consejo de Cultura, Barcelona, Spain.

FIRE LADDER IN SURVEYING WORK.

The Topographical Survey Commission of Baltimore last year surveyed and marked the new boundary line of the city, about forty miles long, created by the annexation of territory, as described in our issue of January 11th, 1919. In connection with this work there was what we believe to be a unique use of fire apparatus.

The plan adopted established twenty-five triangulation stations located as near as possible to the new boundary line. In selecting the locations for these stations, the survey commission was greatly helped by the Board of Fire Commissioners, who supplied the engineers with one of their motor trucks equipped with an extension ladder, which was raised at certain points and ascended by members of the survey corps to make a reconnaissance. This proved to be a very rapid and effective method of determining upon these locations.

BITUMINOUS TREATMENT OF PRIVATE ROADS.

Owners of large farms and rural estates seeking a more satisfactory type of entrance road have applied to the Bureau of Public Roads of the United States Department of Agriculture for advice regarding the application of bituminous material on main entrance and much-traveled farm lanes.

The bureau's engineers point out that such applications may be made successfully on any farm road which has already been constructed of stone, gravel, or other similar material, and is in a thoroughly compacted and reasonably smooth condition. A coal-tar preparation applied cold, or an asphaltic oil, can be used and if applied by the farm employes, the cost should not exceed seven or eight cents a square yard for materials. The compacted gravel or stone roads should be thoroughly cleaned of dust and the bitumen applied with ordinary sprinkling pots from which the perforated nozzle has been removed and the spout carefully flattened into a

symmetrical rectangular opening about one-quarter of an inch wide, so that the material may be poured in a broad, flat stream. If a large amount of work is to be done, a specially designed pouring can may be purchased of dealers in road equipment. Care should be taken to have an even distribution, and the quantity applied should be approximately one-half gallon to a square yard of road surface. After applying the bituminous material clean gravel or stone chips should be spread evenly over the surface, and if possible, rolled with a lawn or field roller. Where gravel or chips are not available, clean coarse sand will serve as covering material. It should be spread in sufficient quantity to prevent the bituminous material from adhering to tires of passing vehicles. Attention is called to the fact that this treatment should not be made where drainage from the stables or barns will flow over it. Where mudholes are likely to form around hitching posts or at stable entrances, if a more durable pavement is desired, a section of concrete slab should be laid.

A SEWAGE TREATMENT EXPERIMENT.

Being Conducted at Mt. Vernon Sewage Treatment Plant on Modified Activated Sludge Process and a New Drum Screen.

The use, in the Milwaukee experimental sewage treatment plant, of what is known as a "Dorr Thickener" for preventing the trouble experienced with activated sludge tanks because the sludge collected in the tanks and became septic, was described in our issue of October 18th, 1917, by the chief engineer of the Sewerage Commission, T. Chalkley Hatton. A short time ago there was put into operation another experimental plant making use of the thickener, the object of which is to develop more efficient application of the activated sludge method.

The plant in question is located on the grounds of the sewage treatment plant of Mt. Vernon, N. Y., and was designed and is being operated by the Dorr Co. Sewage is taken from just below the bar screen of the city plant and flows by gravity to a pumping station, where it is pumped into an elevated tank built of wood staves, first passing through a screen. Both the pump and the air compressor are run by electricity, as are also the rotary screen and the thickeners. There are two tanks which may be called the aerating and the sedimentation tanks, respectively, each of which contains a thickener.

The plant has been changed more or less as its operation suggested improvements, and only recently has it settled down to continuous, uniform operation with routine tests to determine the efficiency. Some results have already been obtained, however, that appear as conclusive as could be expected from a 50,000-gallon experimental plant, while others appear to be promising. The experimenters desire not to make public the general plan or the details of the tank construction, which may be changed more or less; but as it stands, the amount of air used for activation is said to be only about one-third as great as in the Milwaukee plant, while the effect as indicated by the effluent is fully as good.

The sewage is quite strong city sewage. During three days of last week the suspended solids averaged 256 parts per million in the influent to the tanks (after screening) and 48 parts in the tank effluent. The reduction effected in the tanks has averaged 40 to 60 per cent of the total solids, 80 to 96 per cent of suspended solids, and 13 to 40 per cent of dissolved solids. The reducing power of the influent runs about 100 to 150, and that of the effluent 10 to 25. The color by the methylene blue test remains for

several weeks. The percentage of suspended matter removed by the tanks would, of course, show up better if none of the coarse vegetable matter had been removed by the screen; the amount so removed averaging about 500 pounds per million gallons.

The effectiveness of the screen appears to have been demonstrated without further test, although it will, of course, be continued in use in the plant. The screen is practically that furnished by the company under the name of "Dorco" for clarifying trade wastes, but has not previously been used for sewage. It is a drum screen, the ends of the drum being solid while the circumferential surface consists of a wire screen, 24 meshes to the inch, 25-gauge wire. The drum is 4 feet in diameter and the screen face is 12 inches wide. The drum revolves in a box, into which the crude sewage flows and enters the drum through the screen, leaving the drum through an opening in one end a little below the level of the sewage in the box. The suspended matters remain in the box, in which the sewage is churned up by the revolving screen drum and all of the fecal matter ultimately comminuted so as to pass through the screen. Matters such as matches, corn kernels, corks, etc., that resist the macerating and churning action, are removed from the box from time to time, clean and giving off practically no odor. These matters, as stated, average about 500 pounds per million gallons. Through this screen about 50,000 to 60,000 gallons a day pass, and it is claimed that half a million gallons a day could be screened.

The most interesting feature of the screen is the manner in which it cleans itself. As each successive part of the screen rises out of the water, it is seen to be covered with solid sewage matters. The clarified sewage inside the drum is caused to partly revolve by the revolution of the drum, its surface standing lower than that in the box outside at the descending part of the circumference, and higher at the ascending side. The former condition permits sewage to enter the drum through the screen on the descending side, and the latter causes clarified sewage to flow out through the screen on the ascending side. The latter action washes off matters adhering to the outside, taking the place of the water jet or steam jet used in other drum screens. The velocity of revolution of the screen, size of box, relative elevation of water outside and inside the drum and other conditions all affect the effectiveness of this automatic cleaning. When visited a few days ago, the screen, as it passed over the top in its revolving, appeared to be perfectly clean except for a few feathers. The writer was told that feathers are about the only things that are not removed automatically, an occasional one catching in the meshes and having to be removed by hand. As few feathers reach a sewer, once a day would seem to suffice for removing them.

Apparently the screen can be made as fine as desired up to the finest wire cloth that is woven. Fecal matters are not screened out, but their comminution could probably be prevented, if desired, by different construction of the containing box. In general, however, it would seem that the removal of such easily putrescible matters with the screenings would not be desirable. The axle of the drum rests on ordinary journal bearings and carries only the weight of the drum, and the latter requires only a fraction of a horsepower to revolve it. The head lost is perhaps an inch; but this would naturally increase with the fineness of the screen and the volume of sewage treated per day.

The plant is operated continuously, night and day, and the experiments are being made carefully. All the air that leaves the condenser is measured by a recording

meter. The effluent passes over a triangular weir and the head on the weir is read at frequent intervals on a gauge, and is also recorded automatically by means of a liquid level gauge. Knowledge of the amounts of air and sewage is thus not dependent upon the faithfulness of attendants. The excellently appointed laboratory of the municipal plant is used for making the chemical analyses. No analysis is made of the crude, unscreened sewage because of the impossibility of making proper allowance for the feces and other solid matters in it; but the total suspended solids are taken to be those shown by analysis of the screen effluent, plus the matter removed by the screen in a day divided by the amount of sewage screened in that time.

STREET CLEANING AND REFUSE COLLECTION IN NEWARK.*

Details of Collection Service—Records of Men and Teams Employed, Amount and Nature of Work Performed, and Personal Efficiency.

The withholding of the garbage from the refuse dumps on the meadows and delivering it to the piggery removed the salvageable bones from which the dump contractor had been obtaining a part of his profit, but he continues to pay the same sum for the salvage privilege in connection with the ashes and rubbish alone.

Having provided for the utilization of the garbage, the department is now making plans for more satisfactorily disposing of the ashes and rubbish. The lengths of haul of this material onto the meadows average about two and a half miles from the center of the city and reach a maximum distance of about four and a half miles, and considerable saving would result from eliminating the rubbish from this long haul. Also, while the city utilizes the material for desired filling, in the grading of streets on the meadows, the ashes alone would be preferable for this purpose. Plans are now being prepared for the establishing in the southwestern part of the city, of a refuse plant where the rubbish can be sorted over and the useless material burned. The city already owns a site adjoining the railroad yards of the Lehigh Valley railroad, that is suitable for such a plant. A rough estimate of the plant contemplated gives its cost as about \$150,000, although \$100,000 would probably have been sufficient to construct it a year or two ago.

It is the idea of the department to own the plant and lease it to a contractor, who would pay to the city a sum, to be decided by competitive bidding, which would cover the lease and the privilege of salvaging from the rubbish whatever material the contractor was able to dispose of. The city already has received an informal offer of \$7,500 for the privilege and probably under competition this sum would be considerably increased.

COLLECTING REFUSE.

As stated, the city now hires all the horses used in the collecting service, except that occasionally when a few additional horses are needed for a day or two they are taken from the street cleaning stables. This has proven unsatisfactory because of the power of the horse owners to impose terms on the city, and it is hoped that the city can acquire its own horses and the necessary stables. Owing to the large area covered by the city, it would seem desirable to have three stables so located as to serve the various sections with the least length of useless travel. One of these stables may be provided by purchasing an excellently appointed stable capable

* Continued from page 182.

of housing eighty horses which was used by a brewery before the prohibition law put it out of operation.

At present the city is making collections of garbage three times a week and of ashes and rubbish twice a week; although the latter is thought to be unnecessary and one service a week will probably be the rule for a large part of the city after this year. For ashes and rubbish, the city uses five-yard bottom-dump Watson wagons always go to the dump well covered; while have been provided with a metal cover known as the "Philadelphia sanitary ash top," while 25 more wagons are soon to be provided with similar tops. This top is semi-cylindrical in shape and contains four sliding covers, two on each side, so that only one-fourth of the top is open while the wagon is being loaded. The chief advantage of this top is said by Mr. Costello to be that "the load is always covered, dirt and dust do not fly in the face of pedestrians while being loaded, as there is no draft through, and, regardless of weather conditions, wagons always go to the dump well covered; while with the old canvas cover, under abnormal weather conditions it becomes frozen and is very hard to handle and fasten securely, in consequence of which much material is jolted off the wagon." For collecting the garbage, the city uses four-yard wagons, end dump, made of steel and water tight.

In making collections, a man goes ahead of each wagon and removes the garbage and other refuse receptacles from the house to the curb, thus eliminating delaying the collecting wagon. The empty receptacles are returned to the house by the householder and not by the city employees.

The collection service is in charge of a general superintendent and two assistant superintendents, each having charge of about one-half the area of the city. (A third assistant superintendent has charge of the dumps and equipment.) The city is divided into fifteen districts, each of which is in charge of a foreman. Last year there were seventeen districts, but Mr. Costello found it possible by readjustment to reduce the number to fifteen and thus reduce the collecting force by about ten per cent.

SERVICE RECORDS.

Records of the service are being kept and checked, and by the end of the year some very interesting and valuable data will be available. In fact, much has already been recorded in the office, which shows that the systematizing of the work will prove profitable. For instance, the considerable increase in pay of laborers and horses had added \$120,000 a year to that which would have been paid for the same service under last year's rates; in spite of which, the monthly total costs of operating the department during 1919 have been running considerably less than for the corresponding months of 1918, and the yearly total will be less than the 1918 total unless the 10-dollar rate for teams recently granted should more than wipe out all the savings effected.

The reports required by foremen and assistant superintendents, and the records made from these in the office, if made out and checked as designed, should furnish a very accurate and complete record of the work done in both collection and street cleaning.

The foreman of each refuse collection district is required to turn in daily a slip giving the number of each wagon in service that day, number of men and number

of loads hauled, and whether ashes, garbage, rubbish, or mixed; whether the district was all cleaned and, if not, what area was not cleaned; the total number of carriers and loaders; the total number of teams, classified as hired or city owned; the total number of loads; and the time finished. Also, for each wagon, the time it started work, the time it left the district with the first, second, etc., load and the time it returned to the district from each trip, and the total number of loads. The condition of weather also is recorded.

The dump checker at each dump gives to each driver, on each trip, a receipt stating the date, wagon number, name of the dump and name of the checker. These drivers' receipts are used in case of conflict in the records. The receipts are numbered serially and are bound in books, each receipt having its stub, on which stub is recorded the date, wagon number, kind of material hauled, quantity in the yards, time dumped, name of the dump, and name of checker. The time dumped, com-



ASH-COLLECTING WAGON, FITTED WITH SPECIAL TOP.

bined with the records of the district foremen, permit the movements of each driver to be checked up, and prevent his surreptitiously selling the refuse or dumping it elsewhere.

Each of the two assistant superintendents makes a daily report, on which is recorded the district number and foreman of the district for each of the several districts in his charge, and also for each district the number of loaders and pullers (a puller is a man who removes the refuse receptacle from the house to the curb), number of hired teams and number of city teams; also remarks as to the condition of each of the several districts at the end of the day and a general statement as to whether all districts are cleaned and if not, how many were left unfinished.

In the office there is made out from the reports above described a daily office record, which gives the record for each wagon, indicated by number. For each wagon there is indicated the number of loads hauled as reported by the district foreman, the number of loads for this wagon at each of the three dumps and the total at all dumps, and whether the number of loads so checked is under or over the number reported by the foreman. This daily record, it can be seen, is largely for the purpose of checking up the reports as to number of loads hauled.

There is also a daily record kept of the garbage delivered, this record being filled out at the hog farm. Each horizontal line records the wagon number or truck number, number of district it came from, time it arrived, time dumped, the weight and condition of garbage; also a space for remarks. At the top of the sheet is given the date and condition of weather.

Finally there is a general report of all the services performed in each district, there being a line for each district and the headings of the columns being as follows: District number. Foreman and assistant foreman. Ashes—Men (carriers or loaders); hired teams, loads; city teams, loads; total number of loads. Garbage—Men; hired teams, loads; city teams, loads; total number of loads. Rubbish—Men (carriers or loaders); hired teams, loads; city teams, loads; single hired horses, loads; single city horses, loads; total number of loads. Time finished—ashes, garbage, rubbish. Loads left out—ashes, garbage, rubbish. Total number of men. Total hired teams. Total single hired horses. Total city teams. Total single city horses. Total number of loads. Remarks. On this sheet also the date and the weather are recorded, as is the case for all daily reports and records.

For the street cleaning division, there is handed in by each foreman a daily report giving the badge number and name of each man working under him; the number of each wagon and the owner of the team hauling it, the time the team was in service and the number of loads hauled. Also the total number of regular men and of extra men, total number of hired teams and loads removed by them, of city teams and loads removed by them, and of carts and loads removed by them. Also the machine brooms, flushers and sprinklers in service.

The assistant superintendent hands in a daily report giving, for each district, the name of the foreman in charge, the number of regular and extra men, the number of hired teams and city teams and of city carts; and remarks as to condition of each district at the end of the day's work.

In the office is filled out each day a district report giving for each district the number of regular and of extra men; of hired teams and loads, city teams and loads carried, city carts and loads carried; time finished; total number of men, of teams, of loads; number of machine brooms, flushers, and sprinklers at work. Special lines of the report are provided for tow teams and men on the dumps.

A daily report is made out at the stables by the stable superintendent, giving the name of each man in service, his title, the name of his foreman and the machine brooms, sprinklers, sand spreaders, wagons and carts that are taken out from the stable for use, the number of loads of street sweepings, ashes, rubbish or other material hauled, the time each piece of equipment left the stable, the time it returned, and the time elapsed. This is totaled up at the bottom, where is given the total number of drivers, total number of stable men, of mechanics, of laborers, of teams and of singles.

An efficiency record of each man employed in the street cleaning division is kept by each foreman or other man having employes in his immediate charge. This record gives the number of each man, whether regular or extra man, his name, whether his record for the month has been good or poor, and whether he has left the service, been suspended or discharged and the date on which this occurred. There is made out for each man a card with spaces for a year's records, giving his name, address, date appointed and title, what service he was assigned to and what, if any, he was transferred to. As each monthly report giving his record is turned in, this record is entered on his card by checking under the word "good" or "poor" and giving the name of the party by whom this report was made. In this way there is always available a record of the satisfactoriness of the man's performance of his duties, which record can be used when it is necessary to lay off men or in making promotions or transfers.

The refuse collection division has a regular complaint service, and complaints which are sent in by telephone are recorded on a blank giving the district number, date, name of complainant and his address or location, nature of complaint, and whom the complaint was referred to for investigation. This is made in duplicate and the original is turned over to the district foreman or other official for investigation. On the bottom of the same slip is a space in which to record the result of the investigation, together with the signature and title of the person making the report. A ruling is printed on this slip that each complaint must be investigated and report returned within three days of the date of complaint. Where complaints are sent in by letter, a letter-size record is kept in the files on which is given the name of complainant and address and the report giving the result of the investigation, together with the reference number of the letter in which the complaint was made, so that the letter can readily be located in the files at any time. Each month there is made out a record of the total number of complaints for each district, giving the name of the foreman of the district, the number of complaints during each day of the month, the total number of complaints for the month, and a column of remarks. In this way it can be seen at a glance what districts appear to be furnishing the most cause for complaint by the citizens, and which the least cause.

NATIONAL CONFERENCE ON PUBLIC OWNERSHIP.

A call for a conference on public ownership has been issued by the Public Ownership League of America, the conference to be held in Chicago on Saturday, Sunday and Monday, November 15, 16 and 17. Some 40 different labor, farmer, civic and other bodies have joined in the call.

The general purpose of the conference, as stated in the call, is to "study the problems of public ownership; to get the ideas of the most careful and competent utility experts in America; to hear the methods and plans of those who have made a success of public ownership in this and other countries; and to devise way and means for the advancement of the public ownership, efficient operation and democratic control of public utilities."

The first and most important subject on the program is the railroad question and the Plumb Plan of the Railway Brotherhoods. This will be handled by Glenn E. Plumb himself and by other equally prominent men and will be considered from every angle, including the opposition. The United States Chamber of Commerce has been asked to select a representative to take the negative side of a debate on the question.

Next in importance will be the discussion of the present street car crisis. M. M. O'Shaughnessy, of the San Francisco Municipal Street Car lines, Thomas H. Murphine of the Seattle Municipal Lines, Mayor Couzens of Detroit, Delos F. Wilcox, the utility expert, and others, have been invited to handle this subject.

Sir Adam Beck of the great Hydro-Electric Power Commission of Ontario, the greatest publicly owned utility of its kind on the American Continent, has been asked to lead in the discussion of public electric light and power plants.

Governor Lynn D. Frazier and other representatives of the Nonpartisan League have been asked to present the various phases of public ownership put into operation in North Dakota, while James H. Maurer, president of the Pennsylvania State Federation of Labor, and other representatives of organized labor, will present labor's views of the problem, especial attention being given to

the plan of the United Mine Workers for the nationalization of the mines.

Thus every progressive group in the nation and Canada and all important phases of the problem will be discussed. All liberal and progressive people and all organizations interested in working out in a nonpartisan constructive way the solution of the nation's great public utility problems are invited and urged to attend.

The forty-seven bodies that have joined in the call are mostly labor organizations, twelve being unions of railroad employes and seventeen being other labor organizations; ten are local public ownership leagues, and the remainder are commercial and other civic associations.

The call apparently is not for a discussion as to the advisability of public ownership, but for consideration of how such ownership can best be put into practice. In the call it is said: "Regulation as a program for the solution of our public utility problems has broken down. Even in its most recent and highly developed forms, as in the case of the railways, it has failed. Everywhere, more and more, the people are turning to public ownership."

The subjects covered by the program published include the railway problem; municipal electric light and power plants, water works, gas plants, markets and terminal facilities; packing plants, telegraph, telephone, mines, waterways and other natural resources, and "public ownership of government and of congress."

WATERSHED RUN-OFF IN ONTARIO.

Results of Stream Flow and Rainfall Measurements at Forty-eight Stations During 1918—Inches on Watershed and Percentage of Rainfall.

The Hydro-Electric Power Commission of the province of Ontario has recently published a report for the year 1918 giving the results of stream flow measurements made during the year ending September 30, 1918. There are forty-eight stations in the province at which systematic determinations of stream flow are made. The commission states that the important rivers, from a power or a statistical point of view, in the part of the province south and east of North Bay may be considered to be satisfactorily under observation, but that the same cannot be said of the far larger remaining portion, many parts of which are not easily accessible. The number of stations at which rainfall is continuously observed in some of the drainage basins is not large, and the percentages of run-off to rainfall given in the report are sometimes based on the records of only one station in a large area, so that the rainfall recorded at such a station may differ very materially from the true mean for the area in question.

The record for each of the 48 stations gives the location of the station, the records available, drainage area, description of gauge, description of channel and control, method of making discharge measurements, statement concerning winter flow, method of regulation, and accuracy of estimated discharge, together with the name of the observer. Tables give the gauge height in feet and the discharge in second-feet for each day of the year; the width in feet and area in square feet of the stream section, the mean velocity in feet per second, the gauge height in feet and the discharge in second-feet during each of the dates when measurements were taken; and a third table gives the monthly discharge in second-feet and discharge in second-feet per square mile, the mean, maximum and minimum for each month being

given, and finally the total run-off from the drainage area stated as depth in inches on such area.

The last-named tabulation of data, giving the maximum; minimum and mean discharge per square mile and depth of run-off, are of interest, for general comparisons, to those who have no idea of utilizing the power. Figures for the discharge in second-feet per square mile show even greater variations than in most drainage areas in this country. For instance, the monthly averages of second-feet per square mile discharge of the Grand river at Belwood, 280 square miles drainage area, show variations from .01 in January and August to 6.53 in March, the average for the year being .83. The same river at York, where the drainage area is 2,280 square miles, show a minimum monthly discharge of .16 second-feet in January and in August, with a maximum of 5.68 second-feet in March, the average for the year being 1.01. The monthly average of .01 is the lowest discharge recorded, and the largest is 6.95, for the Grand river at Brantford, where the drainage area is two thousand square miles.

The yearly averages in the northwestern Ontario district, seven stations, varied from 0.37 to 0.52; in the northern Ontario district the eight stations showed variations between 0.84 and 1.73; in the eastern Ontario district, 15 stations, the annual average discharges ranged from 0.47 to 1.41; while in the southwestern district the annual averages varied from 0.54 to 1.31. As a general thing, the higher rates were for the smaller drainage areas, but this was not always the case. In fact, the highest rate (1.73) was from an area of 2,820 square miles and the lowest (0.37) from an area of 970 square miles. But the largest area (15,570 square miles) had a discharge of 0.5 second-feet, and the smallest area (71 square miles) one of 1.31 second-feet.

The total run-off for the year, measured as depth in inches on the drainage area, in 63 per cent of the cases lay between 10 and 16 inches, in 26 per cent of the stations was less than 10 inches, and in 11 per cent exceeded 16 inches. The minimum was 5.06 inches, from a drainage area of 970 square miles, the minimum monthly average being 0.3 inch. The maximum annual rate was 18.88, from a drainage area of 430 square miles, the monthly averages varying between 0.25 inch and 4.88 inches.

A table is given showing the run-off as percentage of precipitation. These percentages vary from 19.7 to 72.0 (the run-off in the latter case being 17.78 inches), 56½ per cent lying between 30 and 50 and 85 per cent between 25 and 60. The precipitation varied from 13.89 inches to 38.81 inches, but the great majority of stations reported a rainfall of over 28 inches, and only five less than 20 inches.

PENNSYLVANIA TOWNSHIPS RECEIVE ARREARS IN ROAD AID.

By the act of July 23, 1913, known as the "Jones Dirt Road Act," it was provided that township road taxes should no longer be payable in labor or "worked out," but in cash only; also that the state should reimburse the townships for 50 per cent of the total amount of road tax collected and certified to in a sworn statement, but not more than \$20 per mile of township road.

These payments to the townships were not kept up and deficiencies accumulated, but the 1919 legislature made an appropriation of \$1,142,049.38 to pay in full all the deficiencies due the townships and the certification of this bonus to the state treasurer for payment to the townships is now under way. The payments range all the way from a minimum of \$11.85 to a maximum of \$2,870.26.

The WEEK'S NEWS

West Virginia Highway Department to Furnish Local Bridge Plans—County Highway Supervision in Texas—U. S. Public Health Service Prepares for Influenza—Canadian Contractor Gets \$2,500,000 Kansas City Sewer Contract—Montreal Favored in Arbitration on Aqueduct Contract—Oregon Begins Examination of Engineers—Bethlehem's City Planning Report Accepted.

ROADS AND PAVEMENTS

State Commission Urges Supervision on Local Work.

Austin, Tex.—The state highway commission has issued a statement to local authorities urging adequate supervision, stating that without such supervision the most carefully made plans are valueless. The commission says:

No standard or minimum requirement for such supervision has been accepted by the engineering profession generally or adopted by the State Highway Department. Such matters usually rest with the engineer in charge of the work. Where a commission or percentage engineering fee is paid to such engineers, the tendency is to curtail the supervision to save engineering costs. Such curtailments are usually very expensive to the character of the work.

On the construction of the road the grading or earthwork is the first work done requiring supervision. Sufficient competent engineering assistants should be provided by the engineer in charge, to keep close watch on the grading work to see that objectionable material is not used in fills, that borrow pits are not taken out too deep, and to set finishing stakes on all cuts and fills of more than one foot in depth or height.

On drainage structures adequate inspection is imperative, especially on concrete work. A competent and experienced inspector should be maintained with each and every concrete gang, and no concrete should be allowed to be poured in his absence. His duties should include the measurement and checking of excavations and forms, the checking of each batch of concrete as it goes into the work, in regard to quality and quantity of materials, time and consistency of mixture, and proper placing of same in the forms. An inspector may very easily save his salary for the entire job on a single drainage structure by preventing mistakes, either purposeful or otherwise, which might cause the failure of the entire structure. The same inspection is required on concrete roads as on drainage structures, only still greater care is necessary and the subgrade also requires careful attention.

On all types of road surfacing careful inspection is important. An experienced and competent inspector, and not a mere checker of qualities, should at all times be kept with each gang placing surfacing. His duties should include the inspection of the subgrade for cross section and condition, as well as to insure that the terms of the carefully worded specifications are carried out.

Any county or municipality which does not receive such simple and important services on their highway construction work as have been briefly outlined, is more than apt not to receive the worth of their money in results achieved. It is truly false economy to save engineering and supervision costs at the expense of inferior construction, and the most carefully laid plans and correctly drawn specifications are absolutely valueless without sufficient supervision of a high type.

State to Furnish Highway Bridge Plans.

Charleston, W. Va.—The state road commission has decided upon a definite policy regarding bridge construction on class A roads, under which all such bridges, beginning Oct. 1, will be required to be constructed on plans to be furnished by the engineering staff of the commission. The plans will be furnished without cost to the counties. The purpose of the policy is to obtain uniformity in the plans and specifications of the bridges and in that way secure better bridges for less money than under the old plan. In connection with the announcement, the commission issued the following statement:

The Class "A" roads, in their adoption, are first certified to by the county court, and are approved by the state road commission. These roads shall meet the requirements of the state road law, and the state road commission shall have general supervision over this system.

The improvements of the Class "A" roads, by way of grades, drainage structures, paving, bridges and general alignment, will be definitely decided upon before the work on the improvements are let to contract. The Class "A" road system of the state is only considered permanently located where improvements have been made. Other portions of the Class "A" road system which have not been improved are subject to changes in the way of alignment, grade and betterment of the road-bed.

In case a bridge is to be erected on the section of the Class "A" road which has not been improved, its location will be investigated very thoroughly, with a view to placing the bridge in such a position that it will be on the final location of the road. The bridge location may, in some instances, influence the location of the bridge, and the final location of

the road should be very carefully considered before the final location of the bridge and the road is adopted. Any changes in this system after its adoption are referred to the state road commission for approval. Therefore, the state road commission is the only authority in position to know definitely the final location of the road.

In many cases throughout the state, the existing bridges have been located without regard to final improvements in the road. This will necessitate a few of the bridges to be abandoned, and new ones built, due to the fact that the cost of building a road to suit the bridge location is almost prohibitive. In other cases, the proper location of the road will be influenced by the present bridge location, and as a result, the approaches will be bad, and the general alignment worse. This condition of affairs has come about by not having the necessary preliminary surveys and investigations of the conditions governing the road location before the bridges were built. The foundation of the bridge, in every instance, is a separate problem, and for that reason, each bridge must be fitted especially for that particular location.

In order to secure uniformity in the road construction and bridge building throughout the state, the state legislature has provided that the state road commission shall prepare plans, specifications, etc., for the improvement of the Class "A" system.

"The state road commission has investigated very thoroughly what other states are doing on the subject. The states that have had the greatest amount of experience in the designing and construction of bridges and drainage structures, have with but few exceptions, come to the conclusion that the state should prepare its own plans, and receive bids on the plans so prepared. The states referred to have had the same experience with the conditions that now confront West Virginia.

"They found that the alternate plan system possesses more theoretical than practical arrangements in its favor. These states, with but few exceptions, declare themselves very vigorously in favor of a strong bridge department, and recommend that all plans be prepared by that organization, and requests for bids be on the one plan.

The experience of the business world and the engineering profession have practically arrived at the conclusion that economy is promoted, the best results obtained, and much useless misunderstanding avoided, by the use of plans especially prepared by engineers retained by the interests having construction work done. With only a few exceptions, all large corporations, such as railroads, have their plans prepared by their own staff. The work of the Federal Government is carried on under plans prepared by its own organization.

The large majority of states which have had extended experience in construction work now have all plans prepared by their own staff. Last but not least, most bridge constructors in this state favor the state preparation of plans.

In order to secure competition in the construction and to standardize the work throughout the state, the commission has decided that the best interests of the state will be served by building all Class "A" bridges on plans prepared by its own staff, without cost to the counties, and contractors will not be compelled to go to the expense of having plans and specifications prepared, the cost of which is, in all cases, added to the expense of the structure.

SEWERAGE AND SANITATION

U. S. Health Service Wants Physicians for Influenza.

Washington, D. C.—The U. S. Public Health Service has sent out the following announcement: "The United States Public Health Service is keenly alive to the possibility of a recurrence of influenza in epidemic form during the next few months and as a precautionary measure seeks to have in its possession a list of physicians who might act in emergency in cast of such epidemic. In order to be prepared for a possible recurrence of influenza in epidemic form, the Bureau desires to have a list of physicians available for emergency epidemic duty in each state. May I ask you to secure and forward to the bureau a list of 100 physicians in your state who would be willing to serve under

your direction in such an emergency? The salary would be \$200 per month and per diem allowance of \$4 for subsistence, together with railroad fare. The bureau would utilize these men in their own state and, in so far as possible, in their own community. Any physician who is willing to place his name on this list and have the same forwarded to Washington may do so by sending the same to his state health authorities."

Canadian Contractor Gets Big Sewer Contract.

Kansas City, Mo.—A contract for the construction of the Turkey Creek sewer, at a cost of about \$2,500,000, has been awarded to Thomas Kelly & Sons, Ltd., Winnipeg, Canada, the only bidder. The work involves among other items, 1,750 ft. of 17x18 ft. double-box reinforced concrete sewer, and two pumping stations. The principal item in the construction is a main reinforced concrete sewer approximately 11-8 miles long. Work will not be paid for until completed, and then with four years' special tax bills, bearing 7 per cent interest. These tax bills are practically bonds against the benefited property, which has an area of about 5,000 acres.

Quarantine of Venereal Case Upheld by Court.

Houston, Tex.—The Court of Criminal Appeals of Texas has again held (Ex parte Brooks, 212 S. W., 956) that a person who is infected with a venereal disease may be quarantined until the disease is no longer communicable. A woman, found to have syphilis, was ordered by the health officer of Houston to be confined for treatment at the city farm. She applied for a writ of habeas corpus to secure her release, but this was denied by the court. One of the contentions made in her behalf was that she had been given numerous tests and that some showed positive results and some showed negative results. Regarding this the court said: "Nothing is thus presented for our decision. If relator is free from syphilis or gonorrhea she may present her application for writ of habeas corpus to the local courts under the authority of ex parte Hardcastle (208 S. W., 531), decided by us at this term, and if free therefrom may be discharged. The courts will understand that the health officers have no right or power to hold in quarantine citizens who do not show the presence of some of the diseases named in chapter 85 of the acts of the fourth called session of the thirty-fifth legislature." In conclusion it was stated: "We think the provision of said act that such patients should be confined for treatment until declared cured by official pronouncement is not unreasonable, unjust or arbitrary. Our attention is not called to any authorities holding this or similar acts violative of any of the provisions of our Constitution, or discriminatory, arbitrary, or unreasonable."

WATER SUPPLY

City Wins in Aqueduct Contract Arbitration.

Montreal, Que.—The arbitrators appointed to consider the claims between the Cook Construction Co. and the city, growing out of the contract for the enlargement of the Montreal aqueduct, and also out of the break in the water-supply conduit have made an award favoring the city. The arbitrators were Aime Geoffrion, K. C., John M. R. Fairbairn, chief engineer of the Canadian Pacific Ry., and W. F. Tye, consulting engineer, all of Montreal. In July, 1913, the city awarded to the company a contract for the enlargement of the Montreal aqueduct which amounted to about \$2,323,000 and was subsequently increased by various additions to about \$2,950,000. Work on this contract for the aqueduct enlargement was carried on intermittently from the autumn of 1913 to the autumn of 1917, and was attended with considerable controversy between the contractor and the city. On Dec. 26, 1917, both of the parties agreed to cancel the contract and submit their respective claims to the arbitrators for settlement. The value of the work completed at this time amounted to about 46 per cent of the original tender price. On Dec. 25, 1913, a break occurred in the water-supply conduit situated on the north side of and close to the aqueduct. As this conduit was then the sole source of supply, the city was deprived of water until temporary repairs were made and service was restored on

Jan. 2, 1914. The city maintained that the break was due to the failure of the contractor to adopt the needed precautions in carrying on excavation work adjacent to the conduit, and originally claimed a total of \$412,000, covering not only the amounts expended by the city at the time of the break, but also the cost of certain protection work done to safeguard the conduit, and the cost of installing a water-supply connection with the Lachine canal for emergency service. A majority of the arbitrators (Mr. Tye dissenting) held that the contractor was responsible for the break and awarded the city \$82,000 damages, covering the amount expended by the city at the time of the break. The claims of the Cook Construction Co. against the city for delays, damages, extra work, etc., originally amounted to \$1,922,000, plus interest, and were subsequently reduced to \$1,775,000, plus \$75,000 interest up to Dec. 26, 1917. The three arbitrators awarded the contractor about \$432,000, plus certain interest amounting to about \$17,000 up to Dec. 26, 1917. Of the \$432,000, about \$216,000 is awarded for damages on account of delays by the city, for which the contractor originally claimed \$673,000. The city also submitted claims against the contractor, principally for non-completion of part of the work and for delays, amounting to about \$269,000. On these claims the arbitrators awarded about \$48,000 which, together with the award on the conduit break, makes a total of about \$130,000 in favor of the city. Deducting this sum from the award of \$432,000 to the contractor, leaves a net payment of about \$300,000, plus certain interest charges, to be paid by the city to the contractor.

Contractors Want Cost-Plus Basis.

Walla Walla, Wash.—Construction work on the projected reservoir for the water supply system will have to be postponed until next spring, according to a decision of the officials. It appears to be impossible to get contractors to submit bids on any but a cost-plus basis. The reservoir will have a capacity of 25,000,000 gallons.

MISCELLANEOUS

State Engineer Examining Board Begins Work.

Salem, Ore.—Following the provisions of the law passed by the last session of the state legislature, the Oregon State Board of Engineering Examiners has been organized, with O. Laurgaard, city engineer of Portland, as president. The other officers are F. D. Weber, electrical engineer with the Oregon Insurance and Rating Bureau, vice-president; and A. B. Carter, civil and mining engineer, secretary. The board has established headquarters in Portland for receiving applications for registration of all professional engineers practicing in the state. The bill, which became effective July 1, requires, for those properly qualified, registration without examination; or registration and examination of all professional engineers—mining, civil, mechanical, hydraulic or electrical—practicing in the state.

Bethlehem Accepts City Planning Report.

Bethlehem, Pa.—Eight months ago the city planning commission retained Frank Koester, consulting engineer and city planning expert of New York City, to make a study of the city and surrounding territory prior to preparing a report of a comprehensive city plan. The many civic improvements made in the neighboring city of Allentown within the past few years are the results of Mr. Koester's city planning report for Allentown made in 1915, and this lead to the engagement of him by Bethlehem. Mr. Koester's report has now been accepted by the Bethlehem commission. It covers among other features inter-urban arterial highways, city streets, sidewalk improvements, bridges and bridge approaches, street railways, parks and playgrounds, proposed great ground plan, homes for industrial workers, promoting new industries, civic and educational centers and city sanitation. Special attention is paid to a most extensive park and playground system, and the city has in the meantime acquired large tracts of land for this purpose.

LEGAL NEWS

A Summary and Notes of Recent Decisions— Rulings of Interest to Municipalities

Payment for Local Improvements.

(Ill.) The adoption of one mode of payment for a local improvement excludes the idea of payment in any other mode.—*Gray v. City of Joliet*, 122 N. E. 550.

Demolition of Building After Fire—Liability of City for Accident.

(La.) Under ordinance authorizing commissioner of public works to notify owner of building to take it down after its destruction by fire, or to demolish it if dangerous to life, the commissioner's failure to give notice did not render city liable, where building was being demolished when accident happened, as a direct result of a codefendant's negligence.—*Marshall v. Louisiana State Rice Milling Co.*, 81 So. 331.

Maintenance of Order Governmental Function—Liability for Injuries.

(Mo.) Maintenance of good order in a city park at a sham battle to celebrate the Fourth of July was a governmental function, and the city was not liable for injuries to one helping to handle a cannon, caused by presence of crowd and negligence of one who prematurely fired, on any ground of negligence in permitting dangerous nuisance to occur in a park.—*Healy v. Kansas City*, 211 S. W. 59.

In performing duties relating solely to its corporate character, a city is liable for injuries caused by the negligence of its agents, but, in performing duties relative to its governmental functions for the public good, it is not liable.—*Id.*

Liability of City for Injury on Street Without Sidewalk.

(Mo. App.) Where a pedestrian stumbled into a hole for an electric light pole on a street that had been open for travel for many years, although no sidewalk had been put in, the city was liable; its obligation to maintain a street in good repair arising as soon as it is devoted to the uses of the public.—*McMillian v. Clinton*, 210 S. W. 918.

Depression at Street Intersection—Liability of City.

(Minn.) Where a hole or depression in paving at street intersection resulted from the gradual decay and wearing away of wood, it must have continued for a sufficient length of time to charge a city with notice of it.—*Estabrook v. City of Duluth*, 172 N. W. 123.

Exemption from Taxation—Owner of Plant Not Actual Manufacturer.

(Md.) The owner of a manufacturing plant, who has leased it to another and derives his revenue from the rent received under the lease, not being "actually engaged" in the manufacturing business, is not entitled to a tax exemption under a city ordinance passed under Acts 1912, c. 32, and authorizing the appeal tax court, on the application of one actually engaged in the manufacture of articles of commerce, to abate municipal taxes on manufacturing machinery.—*Felippe A. Broadbent Mantel Co. of Baltimore City v. City of Baltimore*, 106 A. 250.

Right of City to Permit Construction of Platform.

(Ill.) A city ordinance, permitting cold storage company to build a permanent elevated platform over the sidewalk in front of its premises 106 feet long and 13 feet wide, compelling pedestrians to climb four steps on one end and go down an incline 15 feet long on the other for the purpose of enabling the company to load and unload goods, is not for the benefit of the public generally.—*People v. Western Cold Storage Co.*, 123 N. E. 43.

The city council is without authority to grant a private corporation the right to construct a sidewalk 3½ feet above grade on a public street.—*Id.*

A platform erected by a cold storage company over a sidewalk, requiring pedestrians to walk up four steps and down a 15-foot incline, is a permanent and material obstruction to the sidewalk, constituting a purpresture inconveniencing the public, and is a nuisance.—*Id.*

Liability of City for Injuries.

(Ala.) Municipal liability for injuries to pedestrian on public street arises by necessary implication from legislative enactments on subject of municipal power and authority over streets.—*Grambs v. City of Birmingham*, 80 So. 874.

Duty of City to Maintain Parks in Safe Condition.

(Mo.) It is the duty of a city to use care to maintain its public parks, like its streets, in reasonable safe condition, a duty it performs in a proprietary or private character, so that failure to perform it by leaving unprotected pools and chasms renders the city liable for damages.—*Healy v. Kansas City*, 211 S. W. 59.

Subscription by Municipalities for Railroad Stock—Legislation Constitutional.

(Mass.) Legislation authorizing cities and towns to subscribe for the stock of railroads is constitutional.—*In re Opinion of the Justices*, 122 N. E. 763.

Salary-Fixing Ordinance Not a Contract.

(Mich.) The fixing of salaries by the governing body of a city is a legislative act, and an ordinance enacted for that purpose is not in the nature of a contract between the city and the employees.—*Schurtz v. City of Grand Rapids*, 171 N. W. 463.

Honest Assessments Not Reviewable by Courts.

(Mich.) The discretion of assessing officers, honestly exercised on a correct theory, are not reviewable by the courts; but, if they are exercised in bad faith, fraudulently, or arbitrarily, equity can afford relief against collection.—*Dewey v. City of Flint*, 171 N. W. 412.

Suit for Validity of Assessments Before Work Is Done.

(W. Va.) Where owner of abutting property knows the city's purpose to assess his property for a paving improvement, and facts which would render assessments against him improper, he must sue to test the validity of the proceedings before the work is done; otherwise he will be deemed to have waived his rights.—*City of Avis v. Allen*, 99 S. E. 188.

Rights of Materialmen to Money Due from City to Contractor.

(Cal.) Despite Code Civ. Proc., § 1184, under Street Improvement Act, § 19, the rights of materialmen and laborers were limited to a personal recovery against the contractor with a city to do street work, and to a recovery on the bond given by the contractor's surety, and they had no rights against the moneys or bonds due from the city on completion of the work.—*Adamson v. Paonessa*, 179 P. 880.

Assessment for Cleaning Privies Under Police Power.

(N. C.) Under Laws 1917, c. 136, subc. 7, § 4, giving cities power summarily to remove or remedy anything within their limits prejudicial to public health, ordinance of a city providing for the cleaning of surface closets or privies, with an assessment on the land for the expense, for which it might be sold, was a valid exercise of the city's power to protect the public health.—*Ratchford v. City of Gastonia*, 99 S. E. 21.

Flooding of Property Due to Street Defect—Contributory Negligence.

(S. C.) A city is not liable for the flooding of a basement by reason of defects in the grade of a street, unless the injured party proves that he was not guilty of contributory negligence.—*Kirkland Distributing Co. v. Seaboard Air Line Ry.*, 98 S. E. 843.

Where owner of a warehouse consented to construction of a grade across street by a railroad, and undertook to construct its warehouse accordingly, knowing that surface waters would collect by reason of the grade, a city, although negligent in depositing trash in street, which was banked at the defective railroad grade, was not liable by reason of the flooding of the basement of the warehouse, because the negligence of the city and contributory negligence of the owner of the warehouse were inseparable.—*Id.*

NEWS OF THE SOCIETIES

Sept. 30-Oct. 1-3.—NEW ENGLAND WATERWORKS ASSOCIATION. Annual meeting, Albany, N. Y. Secretary, Tremont Temple, Boston, Mass.

Oct. 1-4.—NATIONAL SAFETY COUNCIL. Eighth annual congress, Cleveland, Ohio.

Oct. 21-24.—ILLUMINATING ENGINEERING SOCIETY. Annual convention, Chicago, Ill.

Oct. 27-30.—AMERICAN PUBLIC HEALTH ASSOCIATION. Annual meeting, New Orleans, La. Secretary, A. W. Hedrich, 169 Massachusetts ave., Boston, Mass.

Oct. 27-29.—CITY MANAGERS' ASSOCIATION. Sixth annual meeting at Indianapolis, Ind. Secretary, Harrison G. Otis, Tribune Bldg., New York City.

Nov. 12-14.—AMERICAN SOCIETY FOR MUNICIPAL IMPROVEMENTS. Annual convention, New Orleans, La. Secretary, Charles C. Brown, Springfield, Ill.

Feb. 9-13, 1920.—AMERICAN ROAD BUILDERS' ASSOCIATION. Annual convention, Louisville, Ky. Secretary, E. L. Powers, 150 Nassau street, New York.

City Managers' Association.

President C. A. Bingham announces the decision of the executive committee to be that the sixth annual meeting of the City Managers' Association will be held at Indianapolis the last week in October. The dates are October 27-29.

The National Association of Commercial Organization Secretaries is to be in session at the same city at the same time. Thus the two conventions overlap by a single day and efforts will probably be made to arrange for at least one union session in order to cement more closely the cordial relations between city managers and chamber of commerce secretaries.

The question of place and date of meeting had been submitted to the members, with the result that 13 preferred Indianapolis, 11 Chicago, 6 Kansas City, 4 Louisville, and 3 St. Louis; while 19 wished the annual meeting to be in October and 17 in November; 19 preferred the same place and week as the National Association of Commercial Organization Secretaries, and 2 did not.

The Associated General Contractors of America.

President Garber, of the Associated General Contractors of America, has sent a letter to the members urging them to use the facilities of the Contractors Service Corporation which is the official insurance and surety bond agent of the association. It is hoped that by placing a large proportion of their surety bonds and liability insurance through the Contractors Service Corporation, members would enable the corporation to exert a very large influence in fixing rates, and in obtaining proper coverage and prompt service, and at the same time would furnish financial resources for extending the work of the association.

Mackey, Mackall & Co., managers of the corporation, have actively entered

into their new work. In a statement of policy, the managers say:

"We do not expect to make any exclusive arrangements with any company or companies but to maintain an absolutely independent position, placing the business with those companies and those agents who give us the greatest assistance, all things considered, in rendering to our clients the high degree of service which is expected of us and which we are determined to render."

President Garber's letter says in part:

If the members of the Association cooperate with each other and present a solid front, the Corporation will easily become the largest and most influential compensation insurance and surety bond agent in America, and this agency will represent you and not any insurance company or companies.

Do you realize what that means to you? It means service, i. e., better compensation and liability coverage and prompt and more satisfactory underwriting and execution of bonds, and ultimately, if not immediately, lower and more equitable rates; and we predict that if the members give us their support, we shall be able to improve the coverage and decrease the cost of insurance to substantially every member of the Association.

It is our intention to keep a complete record of premiums received and losses paid on business placed through the Contractors' Service Corporation so that we shall know whether the rates that are being paid are too high or not; and we expect to represent the Association before the rating boards and to have an influential voice in the fixing of rates, not only because we shall control the largest volume of business, but because we shall have accurate information upon which to determine what rates are adequate; and we predict within a comparatively short time the rates for compensation and liability insurance and bonds will be reduced.

And in addition to all this, do you realize what it will mean to you to have your Association amply financed? The Association can perform a wonderful service for its members, but only if it has sufficient funds. If the members support the Corporation, the dividends that will accrue to the Association will provide a large sum of money which can be most usefully employed in ways which we shall not attempt now to enumerate, except to say that if fair treatment is not obtained from the insurance companies, this fund can be used in such a way as to make it unnecessary longer to patronize the companies.

The Corporation's main office will be in New York, where the best facilities of all the companies are available, and we expect to use all the companies, placing each policy or bond where the best results can be obtained, though, of course, we shall give all possible consideration to the preference of any member for any particular company. As soon as practicable we shall establish, for the convenience of the members, agencies or branch offices in all principal cities; and we assure you that we can render you a degree of service that cannot be approached by any other agency or broker whomsoever.

American Association of Engineers.

The executive committee of the American Association of Engineers has rendered a decision that the constitution of the association does not prohibit the admission of architects, and announces that the applications of architects will be considered hereafter as in the same status as applications from engineers. Those architects who have previously applied for member-

ship could not be accepted on account of the apparent exclusion of architects by the constitution, may now re-enter their applications for membership.

The American Association of Engineers announces the appointment of the following chairmen of national committees for the ensuing year:

Americanization.—Garrison Babcock, consulting telephone engineer, Chicago.

Education.—Professor Frederic Bass of the University of Minnesota, Minneapolis.

Ethics.—Isham Randolph, consulting engineer of Chicago.

Finance.—Glen Vivian, accounting department, Bureau of Statistics, Chicago, Milwaukee and St. Paul Ry., Chicago.

Highway.—R. C. Yeoman, chief engineer, Indiana Sand and Gravel Association, Indianapolis.

Legislation.—W. H. Whipple, chief engineer, Lime Association, Washington, D. C.

Membership.—R. W. Barnes, principal assistant engineer, Southern Pacific Ry., Portland, Oregon.

Municipal Engineering.—S. C. Hadden, editor of Municipal and County Engineering, Chicago.

Practice.—H. W. Clausen, general office manager, C. D. Osborne Company, Chicago.

Program.—L. Winship, assistant engineer, Missouri Pacific Ry. Company, St. Louis, Missouri.

Public Relations.—L. K. Sherman, president of the United States Housing Corporation, Washington, D. C.

Publications and Publicity.—W. W. Horner, chief engineer, City of St. Louis.

Qualification.—A. C. Irwin, engineer Structural Bureau, Portland Cement Association, Chicago.

Salaries of Engineers in Public Service.—A. N. Johnson, consulting highway engineer, Portland Cement Association, Chicago.

American Society for Testing Materials.

Ten new standards have been adopted by the American Society for Testing Materials after letter-ballot vote, according to an official announcement. They include four specifications for brass, two new standard tests (for flash point of volatile paint thinners and for apparent specific gravity of fine aggregate); three methods of test procedure (including determination of softening point of bituminous materials), and recommended practice for laying sewer pipe. Two constitutional amendments voted upon at the same time were also carried.

Missouri Valley Road Builders' Association.

At a meeting of contractors, representatives of material companies, and county, state, municipal and Federal engineers, held in Kansas City Sept. 2, it was decided to organize the Missouri Valley Road Builders' Association. The purpose of the organization is to establish closer co-operation and better understanding among contractors, engineers, material companies and highway officials in general.

The officers elected were as follows: Chairman, M. W. Watson, state highway engineer of Kansas; secretary-treasurer, M. R. Amerman, contractor, Salina, Kan., and an executive committee composed of the two above-named officers, with S. A. Fones, of the Independent Gravel Co., Joplin, Mo.; A. W. Graham, state highway engineer of Missouri, and R. E. O'Brien of the Cook & O'Brien Construction Company.

INDUSTRIAL NEWS

International Exposition of Municipal Equipment.

Plans are now perfected for the comprehensive and elaborate International Exposition of Municipal Equipment to be held in Grand Central Palace, New York City, beginning October 15. This enterprise, which will fill a very real need in its particular field, will be a permanent display occupying 50,000 square feet of floor space. This exposition is not to be a "show" in any sense, or a place to attract the curious. It will be an exposition for the city official, engineer, or citizen interested in municipal improvement.

There are to be displays of all sorts of modern equipment and methods used by municipalities, including departments of health, education, police, fire, parks, playgrounds, water, light, heat, power, garbage and sewage disposal, laboratory supplies, hospital and office appliances.

In the health center, for instance, there will be departments of child welfare, clinical and X-ray apparatus, first aid devices, model milk stations, etc. The educational section will contain all kinds of educational features, even to a cafeteria. It is hoped also to include, in the industrial department, a welfare section.

The names of the advisory committee are assurance that the educational and scientific phases of this exposition have been well managed by Mrs. Jeanne Carpenter, director of the exposition. The list includes Dr. Matthias Nicoll, Jr., Nicholas S. Hill, Jr., John Diven, Rudolph Hering, Samuel A. Greeley, Walter D'Arcy Ryan, Clement Driscoll, Joseph Quigley, W. P. Capes, Fred G. Simmons, Myron A. Kesner, Henry L. Kincaide. The representative number of manufacturers who have leased spaces for a year or more is indication of wide interest already aroused. This exposition, like the seven other big commercial permanent expositions in the Palace, will be operated by the Merchants & Manufacturers' Exchange of New York, which is affiliated with The Nemours Trading Corporation, a \$12,000,000 corporation with branches in all the leading cities of the world, including nineteen branch offices and 3,000 foreign selling agencies.

The service to the exhibitor will include personal representation of his product, if necessary, and a lecture room where he may entertain delegations or show a film of his product. The plan for the exposition also includes a Bureau of Information which will supply data to every exhibitor, and where inquiries will be given prompt attention. Wherever a manufacturer has no foreign representative his foreign inquiries will be handled by representatives competent in that line. At present there are a number of foreign representatives in this coun-

try buying municipal equipment, and the appropriations for bonds in the last few weeks for the purchase of municipal equipment for European countries have been enormous. A Swiss delegation consisting of three divisions will begin to arrive in September, and continue on through 1920. Representatives are also coming from many other European countries. They will study our waterways and harbors, our central heat and power plants, our warehouses, packing houses and interurban utilities.

Attendance of officials and buyers is assured. Invitations are being sent to every organization and individual interested in municipal affairs both in this country and abroad.

Information regarding space may be obtained by addressing Director of the International Exposition of Municipal Equipment, Grand Central Palace, New York.

Kentucky Rock Asphalt Company.

This company has recently engaged the services of Rodman Wiley as its chief engineer. Mr. Wiley leaves his position as state highway commissioner of Kentucky to join with this company, after becoming acquainted with its development and learning, from its use on Kentucky highways, the wonderful possibilities of the material handled by them.

The Lakewood Engineering Company, Cleveland, O., announces appointment of Harry W. Benkart as its representative in Buffalo, N. Y., with offices in the Ellicott Square Building. Mr. Benkart will devote his efforts to the general construction field. He has had about ten years' experience in the construction business, the greater portion of which time he spent as superintendent of the Dravo Construction Company. For the past five years he has had an agency for contractors' equipment in Buffalo, including the Lakewood line. He has now discontinued the other lines and has joined the Lakewood organization as a member of the sales department.

The Asphalt Association, 15 Maiden Lane, New York City, has issued a series of four brochures dealing with asphalt and its use in paving. The first booklet is entitled "The Asphalt Association" and describes the organization, states its broad objects and enumerates the many valuable services it has undertaken to render to the industry and to officials, contractors and the general public interested in highway improvement. "Asphalt, a World Old Material" is the title of the second brochure. Some very interesting ancient history of asphalt is narrated and the growth of the modern asphalt industry is briefly recorded. The general uses of asphalt are also outlined. Brochure No. 3 is on "Cost and Service of New York State Highways." It is a discussion of the actual costs of improved state highways in New York and of the service rendered, by George

C. Diehl, county engineer of Erie county, N. Y. It gives interesting cost figures. The fourth brochure deals with "Saving the Investment in Macadam Pavements." It urges the conservation of the great investment in existing macadam pavements by proper asphalt surfacing and gives practical advice as to the most effective methods of rebuilding ruined macadam road surfaces. These brochures are for general distribution and may be had free of charge upon application at the office of the association.

PERSONALS

Brown, Charles Carroll, has been appointed professor of civil engineering at Valparaiso University, Valparaiso, Ind. He will have charge of municipal, sanitary and highway engineering. During the past year he has been officially connected with the Illinois State Highway Department, from which he has obtained a year's leave of absence. To most municipal engineers and public works officials, however, he is remembered as the editor of Municipal Engineering and later as a member of the editorial staff of Municipal Journal.

Mattimore, H. S., who was connected for fifteen years with the New York State Highway Commission, nine years in charge of physical testing work, has resigned and has accepted a similar position with the Pennsylvania State Highway Commission.

Cannon, Sylvester Q., city engineer of Salt Lake City, Utah, has been relieved of the duties of superintendent of the water department, which he assumed as a war economy measure. H. K. Burton, water-supply engineer in Mr. Cannon's office, has been appointed to the position.

Brown, Le Grand, formerly an engineer in Rochester, N. Y., who has been engaged in consulting work in California for a number of years, has been appointed deputy city engineer of Rochester.

Darrow, Capt. W. E., 33rd Engineers, U. S. A., has received his discharge and has returned to his position as assistant engineer, New York State Highway Department, with headquarters at Utica.

Wiggin, Thomas H., has resigned his position as designing engineer for the Board of Water Supply of the City of New York, and has gone to China, where he will remain about six months. He is to work on preliminary designs for improving the Grand Canal. Joseph Ripley is chief engineer in charge of surveys and studies for this work and John R. Freeman is consulting engineer.

Mr. Wiggin recently returned from two years of active service with the A. E. F. in France, where he was on the staff of the Chief Engineer, Line of Communication (afterward known as Director of Construction and Forestry), and had charge of the section of water-supply and sewerage. He entered the army from the Engineer Officers' Reserve Corps, in which he was captain, and received successive promotions to major and lieutenant-colonel.

ADVANCE CONTRACT NEWS

ADVANCE INFORMATION BIDS ASKED FOR

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we cannot guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also correction of any errors discovered.

BIDS ASKED FOR

STREETS AND ROADS.

- Ala., Scottsboro.** Oct. 6.
Grading, draining and surfacing with stone 6 mi. road in Jackson Co., involving 6,354 cu. yd. earth excavation, 319.18 cu. yd. concrete, 13,978 lbs. reinforcing steel, 134 lin. ft. 18 and 24-in. pipe, 9,393 cu. yd. stone surfacing, etc.—W. S. Keller, State Hwy. Engr., Montgomery.
- Ala., Montgomery.** 11 a.m., Sept. 30.
Paving roadway with brick, asphalt, bitulithic, mineral rubber, wood block, concrete, vibrolithic concrete or asphaltic concrete, involving 9,150 sq. yd. pavement.—S. E. Washburn, City Engr.
- Ark., Little Rock.** 11 a.m., Oct. 1.
Improving roads in Conway Co., involving 65,000 cu. yd. earth excavation, 4,000 cu. yd. rock excavation, 1,740 rods fencing, 125,000 sq. yd. bituminous macadam surface course, 1,100 lin. ft. 18-in. and 800 lin. ft. 24-in. concrete pipe, one steel bridge, etc.—Harrington, Howard & Ash, Engr., Kansas City, Mo.
- Ark., Pine Bluff.** Oct. 1.
Paving 42½ mi. road in Paving Dist. No. 14.—State Hwy. Dept., Little Rock.
- Cal., Sacramento.** 2 p.m., Oct. 6.
.4 mi. state highway in Humboldt Co., involving 35,800 cu. yd. excavation, 7,270 cu. yd. class A Portland cement concrete for pavement and 150 cu. yd. for culverts and monuments, 1,148 lin. ft. 18 to 36-in. corrugated metal pipe, 1,800 lin. ft. guard rail, etc.; also 18.2 mi. state highway in Siskiyou Co., involving 18,100 cu. yd. class A Portland cement concrete pavement.—A. B. Fletcher, Hwy. Engr., State Hwy. Comm., 515 Forum Bldg.
- Ga., Trenton.** 10 a.m., Oct. 2.
9.8 mi. fed. aid road in Dade Co., involving 12 acres clearing and grubbing; 44,000 cu. yd. excav.; 1,050 cu. yd. concr. in headwalls, culverts and bridges; 18,300 lbs. steel reinforcing in bridges and culverts, 1,400 lin. ft. vitr. clay pipe culverts and 25,000 cu. yd. sand clay surfacing. Also 2.4 mi. fed. aid road, involving 1 acre clearing and grubbing; 26,000 cu. yd. common excav.; 6,000 cu. yd. rock excav.; 120 cu. yd. concr. in headwalls, culverts and bridges; 1,050 lb. steel reinforcing in culverts and bridges; 6,250 cu. yd. sand clay surfacing, and 450 lin. ft. vitr. clay pipe culverts.—Johnston & Morgan, proj. engrs., 609 Flatiron Bldg., Atlanta.
- Ga., Monroe.** noon, Oct. 1.
.82 mi. top-soil road in Walton Co.—Bd. Comrs. of Roads and Revenues.
- Ill., Rockford.** 2 p.m., Oct. 10.
Brick pavement in two streets, involving 4,000 cu. yd. excavation, 11,300 sq. yd. pavement, 175 ft. cement curb, 5,960 ft. curb and gutter, 400 ft. 10-in. No. 2 sewer pipe, 2 catchbasins and 16 curb intakes; 8,850 cu. yd. excavation, 24,025 sq. yd. pavement, 12,800 ft. curb and gutter, 2 crossing headers, 13 catchbasins, 67 curb intakes, 1,340 ft. 9-in., 700 ft. 10-in. and 325 ft. 12-in. No. 2 sewer pipe.—Pub. Engr.
- Ind., Mt. Vernon.** 2 p.m., Oct. 7.
6,190 ft. gravel road in Bethel Twp.—J. R. Haines, Co. Aud.
- Ind., Williamsport.** 2 p.m., Oct. 7.
10,787 ft. macadam road on county line between Jasper and Newtown Cos.—S. R. Sizelove, Co. Aud.
- Ind., Brookville.** 1 p.m., Oct. 6.
14,585 ft. road in Whitewater Twp.—C. G. Reifel, Co. Aud.
- Ind., Corydon.** 2 a.m., Oct. 7.
13,373 ft. stone road in Posey Twp.—S. C. Mauck, Co. Aud.
- Ind., Frankfort.** 2 p.m., Oct. 7.
2,641 ft. gravel road in Johnson Twp.—E. Spray, Co. Aud.
- Ind., Sullivan.** noon, Oct. 7.
2,800 ft. macadam road in Jefferson Twp.—F. M. Daniels, Co. Aud.
- Ind., Lebanon.** 10 a.m., Oct. 7.
12 gravel roads, one between Boone and Hendricks Cos., 4 in Marion Twp., 2 in Eagle Twp. and 1 in Center and Jackson, Clinton, Center, Perry and Worth Twp., respectively—C. Goodwin, Co. Aud.
- Ind., Greenfield.** Oct. 6.
Several roads in Hancock Co.—C. Boone, Co. Engr.
- Ind., Vernon.** 2 p.m., Oct. 6.
2,762 mi. crushed stone road in Marion twp. and 14,020 ft. crushed stone road in Geneva twp.—E. Bemish, Co. Aud.
- Ind., Rushville.** 2 p.m., Oct. 6.
15,621 ft. gravel road in Ripley twp.—Wm. H. McMillen, Co. Aud.
- Ind., Brownstown.** 2 p.m., Oct. 6.
5,400 ft. gravel road in Carr Twp. and 14,340 ft. stone and gravel road in Washington Twp.—A. Luedtke, Co. Aud.
- Ind., Vevay.** 1 p.m., Oct. 6.
16,900 ft. stone road in Cotton Twp.—W. E. Reeves, Co. Aud.
- Ind., Boonville.** 10 a.m., Oct. 6.
Road in Hart Twp.—Wm. A. Campbell, Co. Aud.
- Ind., Bedford.** 1 p.m., Oct. 7.
13,777 ft. gravel or macadamized road in Shawswick Twp.—Wm. M. Dennison, Co. Aud.
- Ind., Washington.** 2 p.m., Oct. 7.
3 mi. road in Barr Twp.—J. G. Clark, Co. Aud.
- Ind., Rensselaer.** 2 p.m., Oct. 6.
Four stone roads in Marion, Gillam, Barkley and Carpenter Twp.—J. P. Hammond, Co. Aud.
- Ind., English.** 2 p.m., Oct. 6.
Four crushed limestone roads in Patoka, Sterling, Whiskey Run and Liberty Twp.—O. D. Tadlock, Co. Aud.
- Ind., Williamsport.** 1 p.m., Oct. 6.
5,349.5 ft. gravel road in Pine Twp.—W. H. Stephens, Co. Aud.
- Ind., Bloomfield.** 2 p.m., Oct. 7.
Macadam road in Taylor Twp.—H. Corbin, Co. Aud.
- Ind., Madison.** 1 p.m., Oct. 7.
19,000 ft. gravel road in Saluda Twp. and 7,842 ft. road on line between Hanover and Republican Twp.—C. S. Dabler, Co. Aud.
- Ind., Delphi.** 1.30 p.m., Oct. 7.
Macadam road in Jefferson Twp. and macadam road in Clay Twp.—H. D. Good, Co. Aud.
- Ind., Knox.** noon, Oct. 7.
Three roads in Jackson Twp. and three roads in Davis Twp., Wayne Twp. and Railroad Twp., respectively.—C. W. Weninger, Co. Aud.
- Ind., Winamac.** noon, Oct. 7.
10,620 ft. crushed stone road in White Post Twp.—J. C. Howe, Co. Aud.
- Ind., Rochester.** 2 p.m., Oct. 7.
Gravel road in Aubbeenaubee Twp.—E. A. Smith, Co. Aud.
- Ind., Salem.** 2 p.m., Oct. 7.
19,040 ft. road in Vernon Twp., 15,033 ft. road in Madison Twp., 10,665 ft. road in Vernon Twp. and 9,425 ft. road in Pierce Twp.—E. E. Batt, Co. Aud.
- Ind., Washington.** 2 p.m., Oct. 7.
Roads in Washington Twp., in Washington and Steele Twp., in Veale Twp., three roads in Madison Twp. and two in Steele Twp., each less than three mi. in length.—J. G. Clark, Co. Aud.
- Kan., Beloit.** 11 a.m., Oct. 1.
21,382.6 lin. ft. 16-ft. 2-course concr. pavement with 6-ft. shoulders, in Mitchell Co.—Co. Clerk.
- Kan., Hutchinson.** noon, Oct. 10.
37,454 ft. Federal aid work in Grant, Salt Creek Twp., including 18-ft. monolithic brick road with 6-ft. earth shoulders; 26,423.7 ft. 18-ft. bituminous brick, monolithic brick, one-course concrete or two-course concrete road with 6-ft. earth shoulders in Sylvia Twp.; 29,148.3 ft. 18-ft. bituminous brick monolithic brick, one-course or two-course concrete road with 6-ft. earth shoulders in Sylvia and Hayes Twp., 1,129.2 ft. 18-ft. one-course or two-course concrete road in Reno Twp.; also sections C, D, E, F and G, Federal Aid Project 27, all in Reno Co.—C. H. Stewart, Co. Clk.
- Kan., Ft. Scott.** Oct. 6.
Macadamizing 43,207 ft. 16-ft. highway.—B. Boyle, Engr.
- Kan., Leavenworth.** Sept. 30.
Five mi. concrete road in Leavenworth Co.—Co. Clk.
- La., New Orleans.** noon, Oct. 6.
19.8 mi. gravel road and 14.5 mi. gravel road in Rapides Parish.—D. Buie, State Hwy. Engr.
- La., New Orleans.** noon, Oct. 13.
11.79 mi. gravel road in Calcasieu Parish and three mi. bituminous macadam road in St. Bernard Parish.—D. Buie, State Hwy. Engr.
- Mass., Boston.** noon, Sept. 30.
2,000 ft. asphalt road in Lexington and 5,500 ft. tar road in Princeton.—F. I. Bieler, Secy., State Hwy. Comm., State House.
- Mass., Boston.** noon, Sept. 29.
Sheet asphalt, topeka, bitulithic, flibertine or Simasco pavement in street in Brighton; bitulithic pavement in street in Dorchester.—T. F. Sullivan, Comr. Pub. Wks., 508 City Hall Annex.
- Mich., Lansing.** 1.30 p.m., Sept. 30.
Improving 7,037 mi. road in Pentland Twp., Luce Co., and Soo Twp., Chippewa Co., involving clearing right of way and grubbing roadway.—F. F. Rogers, State Hwy. Comr.
- Mich., Mio.** 1.30 p.m., Sept. 30.
0.994 mi. road in Big Creek Twp., involving shaping road, draining, and surfacing with gravel, 16-ft. wide; 1,006 mi. in Big Creek Twp., involving shaping and grading road, draining and surfacing with gravel, 16-ft. wide, both in Oscoda Co.—F. F. Rogers, State Hwy. Comr., Lansing.
- Mich., Lansing.** 11 a.m., Oct. 1.
0.924 mi. road in Chester Twp., Otsego Co., consisting of shaping road, draining and surfacing with gravel or stone gravel for width of 16 ft.—F. F. Rogers, State Hwy. Engr.
- Minn., Le Sueur.** 2 p.m., Oct. 7.
7.49 mi. Federal Aid Project No. 89, involving 10 acres clearing and grubbing, 95,000 cu. yd. grading, 175,000 cu. yd. overhaul, 52,020 lin. ft. tile drain, seventy 12 to 24-in. portable culverts, 237,500 sq. yd. concrete paving, one 24-ft. reinforced concrete bridge.—S. McMillen, Co. Aud.
- Minn., Fairmont.** 10 a.m., Oct. 15.
4.6 mi. Federal Aid Project No. 72, involving 44,303 cu. yd. excavation, 3,080 lin. ft. guard rails, 397.5 ft. 12 to 20-in. portable culverts materials, 5,460 cu. yd. gravel surfacing material and one 40-ft. reinforced concrete bridge.—H. C. Nolte, Co. Aud.
- Minn., Brainerd.** Oct. 11.
Improving 3.5 mi. 24-ft. road, involving 20 acres clearing and grubbing, 43,600 cu. yd. grading, 20,000 cu. yd. overhaul, etc.—C. L. Mott, Engr.

BIDS ASKED FOR

- Minn., Montevideo.** Oct. 7.
Improving 5 mi. Federal Aid Project No. 88, 24-ft. road, involving 40,931 cu. yd. grading, 89,783 cu. yd. overhaul, 6,000 cu. yd. graveling, etc.—F. P. Nelson, Engr.
- Minn., Faribault.** 2 p.m., Oct. 1.
12.6 mi. state road, involving 71,223 cu. yd. excav., 1,905 lin. ft. P. L. Culverts (15 to 30-in.), 15,077 cu. yd. gravel surfacing, etc.; 7.1 mi. State road, involving 46,982 cu. yd. excav., 1,245 lin. ft. 15 and 18-in. P. L. culverts, 8,569 cu. yd. gravel surfacing, etc.—F. M. Kaisersatt, Co. Aud.
- Mo., Independence.** Oct. 1.
32,424 sq. yds. bituminous macadam, 6,524 lbs. rein. steel, 800 yds. rip rap, and 15,572 cu. yd. excav. for road in Jackson Co.—O. C. Sheley, Engr.
- Mo., Lancaster.** Oct. 13.
Paving and curbing street, involving 14,000 sq. yd. vitr. brick, 7,500 lin. ft. coner. curbing and 3,500 cu. yd. earth excav.—Grist & Wiegner, engr., Lancaster.
- Mo., Independence.** 10 a.m., Sept. 30.
3.1 mi. State Road Project No. 18, including grading, surfacing with bituminous macadam 16 ft. wide, earth shoulders, ditches and culverts, etc., in Jackson Co.—O. C. Sheley, Co. Hwy. Engr., Court House.
- Mo., St. Louis.** noon, Oct. 7.
Granitoid sidewalk pavements from four to six ft. wide on seven city streets.—E. R. Kinsey, Pres., Bd. Pub. Serv.
- Mo., Charleston.** 2 p.m., Oct. 1.
State Road Project No. 7, involving grading, culverts, drains, steel bridges and 15.3 mi. two-course concrete pavement, 16-ft. wide.—C. E. Swank, Co. Hwy. Engr.
- Mo., Ridgeway.** Oct. 6.
Improving various streets, involving 24,700 sq. yd. concrete paving and 2,500 cu. yd. concrete curbing and guttering.—C. A. Stone, Engr.
- N. J., New Brunswick.** 2:30 p.m., Oct. 2.
Improving portion of roadway in Middlesex Co. with vitrified block surface upon concrete foundation, involving 600 sq. yd. surface pavement and 100 cu. yd. foundation.—A. B. Fox, Co. Engr., 175 Smith St., Perth Amboy.
- N. J., Elizabeth.** 2:30 p.m., Oct. 1.
Improving street in Rahway with concrete surface, involving 11,902 sq. yd. surfacing and foundation.—J. L. Bauer, Co. Engr., 120 Broad St.
- N. J., Bayonne.** 11 a.m., Sept. 30.
Improving street, involving 3,000 cu. yd. excavation, 8,300 sq. yd. asphalt pavement, 2,900 lin. ft. new concrete curb, eight sets concrete curb corners, 150 lin. ft. bluestone header, 710 sq. yd. concrete sidewalk, 500 sq. ft. bluestone flag re-laid, etc.; also improving street, involving 1,400 cu. yd. earth excavation, 2,600 sq. yd. asphalt pavement, 1,400 lin. ft. new bluestone curb, four sets bluestone curb corners, etc.—City Engr., City Hall.
- N. Y., New York.** 11 a.m., Sept. 30.
Re-paving with sheet asphalt on concrete foundation; grading sidewalk and gutter space and laying sidewalks where necessary; curbing and flagging where necessary on various streets in Boro. of Queens.—M. E. Connolly, Pres., Boro. of Queens.
- N. Y., New York.** 11 a.m., Oct. 1.
Paving with permanent asphalt pavement on 6-in. concrete foundation.—E. Riegelmann, Pres., Boro. of Brooklyn.
- N. Y., New York.** 10:30 a.m., Sept. 29.
Furnishing 10,000 gal. bituminous road surfacing material for use hot.—H. Bruckner, Pres., Boro. of Bronx.
- N. C., Goldsboro.** noon, Oct. 9.
Grading and paving streets with vitr. brick, wood blk., coner. sheet asphalt, asphaltic coner. or bitulithic, involving 100,000 sq. yd. pavement, 55,000 lin. ft. combined coner. curb and gutter, 5,000 sq. yd. sidewalk paving, storm drains, etc.—J. L. Ludlow, engr., Winston-Salem.
- O., Avon Lake.** noon, Sept. 29.
Road improvements—W. R. Honz, Clk. Village Council.
- S. C., Anderson.** noon, Oct. 7.
Highways in Anderson Co., involving 75,000 sq. yd. all classes permanent pavement, 60,000 cu. yd. excavation, 50,000 lin. ft. concrete curb, 10,000 lin. ft. wood curb, 5,000 lin. ft. storm water drains, 2,000 cu. yd. Class A, 5,000 cu. yd. Class B and 2,000 cu. yd. Class C concrete.—W. A. Sanders, Engr., Co. Hwy. Comm.
- N. D., Crosby.** 10:30 a.m., Oct. 7.
Grading, furnishing and installing corrugated metal culverts and installing monolithic concrete arch and box culverts on 10.5 mi. road in Divide Co., involving three acres clearing and grubbing, etc.—W. H. Robinson, Chief Engr. and Secy., State Hwy. Comm., Bismarck.
- N. D., Lisbon.** 2 p.m., Oct. 6.
Grading, furnishing and installing corrugated metal culverts and installing monolithic concrete arch and box culverts on 14.4 mi. Federal Aid Project in Ransom Co., involving five acres clearing and grubbing, 72,797 cu. yd. excavation, etc.—W. H. Robinson, Chief Engr. and Secy., State Hwy. Comm., Bismarck.
- N. D., Lisbon.** 2 p.m., Oct. 2.
22.78 mi. earth road in Ransom Co.—W. H. Robinson, Chief Engr. and Secy., State Hwy. Comm., Bismarck.
- O., Kenton.** Oct. 3.
Paving streets with asphaltum or asphaltic concrete.—R. E. Ratcliffe, Clk., Bd. Pub. Serv.
- O., Cincinnati.** noon, Oct. 3.
Widening road with macadam paving in Crosby Twp.; improving road in Whitewater Twp.—A. Reinhardt, Clk., Bd. Co. Comrs.
- O., Medina.** Sept. 23.
Grading and paving with concrete two mi. road, with 10-ft. pavement.—C. D. Lowe, Clk., Bd. Co. Comrs.
- O., Toledo.** noon, Oct. 7.
Improving alley by grading and draining; improving street by widening pavement from 24 to 32 ft., with necessary grading, resetting curb, relaying sidewalks, drainage, etc.—C. A. Benedict, Dir. Pub. Welfare.
- O., Cleveland.** noon, Oct. 1.
Grading, draining, curbing, paving, repaving and improving two streets.—Comr. Engrs., 618 City Hall.
- O., Toledo.** noon, Sept. 30.
Paving with concrete or vitrified brick, asphalt or creosoted wood blocks, with necessary curbing, headers, drainage, grading, installing sewer connections, etc.—D. H. Goodwillie.
- O., Avon.** noon, Oct. 6.
Improving 1½ mi. road.—L. Bennett, Vil. Clk.
- Okla., Collinsville.** 4 p.m., Oct. 13.
Twenty-five blocks paving with asphaltic concrete, brick blocks or reinforced concrete.—Johnson & Benham, Cons. Engrs., Firestone Bldg., Kansas City, Mo.
- Pa., Ebensburg.** Sept. 30.
Two sections main line road in Cambria Co.—Co. Comrs.
- Pa., Harrisburg.** 10 a.m., Sept. 30.
Reconstructing pavements of one-course reinforced concrete, bituminous surface course on concrete foundation, vitrified brick of Hillside vitrified brick in following counties: 11,640 lin. ft. in Armstrong, 9,577 lin. ft. in Bucks, 12,947 lin. ft. and 6,634 lin. ft. in Cambria, 5,326 lin. ft. in Centre, 28,292 lin. ft. and 21,619 lin. ft. in Chester, 4,265 lin. ft. in Clinton, 18,514 lin. ft. in Crawford, 26,713 lin. ft. in Delaware, 37,521 lin. ft. and 32,316 lin. ft. in Erie, 25,164 lin. ft. in Fayette, 23,201 lin. ft. in Greene, 19,618 lin. ft. in Lancaster and 110,170 lin. ft. in Westmoreland Co.—L. K. Sadler, State Hwy. Comr.
- Tex., Ranger.** 2 p.m., Oct. 2.
1,400 sq. yd. street paving, 26,000 cu. yd. excavation, 37,000 lin. ft. combination curb and gutter.—H. Exall Elrod Co., Engrs., 209½ Lane St., Dallas.
- Tex., Coleman.** 2 p.m., Oct. 10.
Hwy. improvement in Coleman Co., involving grading 57 mi. hwy., rein. coner. drainage structures, culverts and bridges.—General Engrg. Co., Brownwood.
- Tex., Dallas.** 10 a.m., Oct. 6.
Grading state hwy. from here to Carrollton.—W. J. Powell, Co. Engr.
- Wash., Tacoma.** 11 a.m., Oct. 10.
Improving about 95 mi. of road.—C. A. Campbell, County Auditor.
- W. Va., Madison.** Oct. 2.
Grading and draining 5 mi. road in Boone Co., involving 60,000 cu. yd. excav.—S. E. Bradley, engr.
- W. Va., Fayetteville.** 2 p.m., Oct. 6.
7 mi. county highway with asphaltic concrete, cement concrete, penetration macadam, or other improved pavements, 9 ft. wide, with stone shoulders; also 4 concrete bridges.—J. K. McGrath, Road Engr.

SEWERAGE.

- Ind., Indianapolis.** 10 a.m., Oct. 1.
Furnishing and installing mechanically operated sewage screens with total capacity of 100,000,000 gal. per day for Div. 11 of sewage disposal plant.—C. H. Hurd, Engr., 1405 Merchants Bank Bldg.
- Ind., Indianapolis.** 10 a.m., Oct. 1.
Furnishing and installing mechanically operated sewage screens with total capacity of 100,000,000 gal. per day.—C. H. Hurd, Const. Engr., 1405 Merchants Bank Bldg.
- La., Rockwell City.** 10 a.m., Sept. 30.
Sewage disposal plant and outlets at woman's reformatory.—State Bd. Control.
- Minn., Adrian.** 8 p.m., Sept. 30.
General sanitary sewer system, involving 17,616 ft. 8-in., 4,139 ft. 10-in., 1,128 ft. 12-in., and 350 ft. 15-in. vitr. sewer tile, disposal tank, including septic tank and sludge bed and by-pass and accessories.—Druar & Smith, Engrs., St. Paul.
- Minn., Thief River Falls.** Sept. 30.
Storm sewer and water and sewer connections.—City Clk.
- Mont., Billings.** Oct. 7.
32,000 ft. 8-in. sanitary sewer.—E. M. Sneckenberger, City Engr.
- Neb., Scribner.** Oct. 3.
Laying 5 mi. 8 to 12-in. vitrified clay pipe sewers in various streets.—J. A. Bruce, Engr., 204 Bee Bldg., Omaha.
- N. J., Bayonne.** 11 a.m., Sept. 30.
Sewer and appurtenances, involving 260 ft. 15-in. vitrified pipe sewer, two standard manholes, etc.—City Engr.
- O., Vermillion.** noon, Oct. 6.
Sewer system and appurtenances, comprising 50 lin. ft. 12-in., 6,000 lin. ft. 10-in., 23,200 lin. ft. 8-in. and 3,200 lin. ft. 6-in. vitrified pipe, house connections, 100 manholes.—G. B. Gascoigne, San. Engr., Cleveland.
- Pa., Baldwin.** Oct. 1.
2 mi. sanitary sewers in drainage area No. 1, Fairhaven.—T. J. McGovern, Twp. Engr.
- S. D., Elk Point.** 8 p.m., Oct. 7.
Sewerage system.—W. L. Bruce, Engr., Yankton.
- Tex., Gorman.** 2 p.m., Sept. 30.
Sanitary sewer system with disposal plant.—H. Exall Elrod Co., Engrs., 209½ Lane St., Dallas.

WATER SUPPLY.

- Conn., East Hartford.** 8 p.m., Oct. 2.
Extensions to municipal water works, including 2 covered coner. reservoirs, low dam, 16-in. cast iron pipe line 5.6 mi. long with appurtenances.—J. H. Fuertes, engr., 140 Nassau st., N. Y. C.
- Mich., Detroit.** 1 p.m., Sept. 30.
Foundation and sub-structure for low lift pumping station.—B. F. Guiney, Pres., Bd. Water Comrs., 232 Jefferson ave.
- Minn., Lakefield.** 8 p.m., Sept. 30.
Furnishing and installing a deep-well pump of double-stroke type, direct-gear to motor.—L. W. Rue, Vil. Recorder.
- N. Y., Buffalo.** 11 a.m., Sept. 29.
Furnishing 100 hydrants with 5-ft. standpipe to Bureau of Water; also furnishing cylinder oil, machine oil and engine grease at pumping station.—A. W. Kreinheder, Comr. Pub. Wks., Municipal Bldg.
- N. Y., New York.** 10:30 a.m., Oct. 2.
Furnishing corporation cocks and pig lead to Dept. of Water Supply, Gas and Electricity.—Bd. Purchase, Municipal Bldg.
- N. D., Hebron.** 8 p.m., Oct. 7.
Drilling well or wells to admit 6-in. casing or 8-in. casing, with 400-ft. depth for one well or 350 ft. each for two wells.—J. H. Watts, City Aud.
- O., Toledo.** noon, Sept. 30.
Extending filter house at water purification works and furnishing 132 hydraulic valves from 3 to 14 in., 22 effluent controllers with one master controller, or 56 effluent controllers with three master controllers.—H. H. Goodwillie, Dir. Pub. Serv.
- O., Cincinnati.** noon, Oct. 1.
Furnishing 600 1-in. O. D. brass condenser tubes No. 13, E. W. G., 13 ft. long, for river station of water works department, California, O.—E. Von Bargaen, City Purchg. Agt.

BIDS ASKED FOR

O., Shadyside. Oct. 7.
700 ft. 6-in. class C. cast iron pipe.—F. McConn, Clk.

O., Columbus. noon, Sept. 29.
Furnishing 440 tons 36-in. straight pipe and five tons 36-in. specials; 130 tons 24-in. straight pipe and five tons 24-in. specials; 60 tons 8-in. and 10 tons 6-in. pipe, Class B, in 16-in. lengths or 12-in. lengths.—G. A. Borden, Pres., Bd. Purch.

Ore., Stansfield. Oct. 2.
Municipal water works system—Mayor.

Wis., Dodgeville. 7 p.m., Oct. 2.
3,500 ft. water mains.—J. P. Lewis, Vil. Clk.

LIGHTING AND POWER.

Cal., Mare Island. Oct. 1.
Installing electric lighting and power systems.—Bureau of Yds. & Docks, Navy Dept., Washington, D. C.

Minn., Glyndon. 8 p.m., Sept. 30.
Installing and constructing electric pole line from Dilworth to Glyndon.—W. Shave, Vil. Clk.

O., Youngstown. Oct. 13.
Additions and alterations to electrical equipment of power plant in Mahoning Co. Court House.—Crippen & Funk, Engrs., Ohio Hotel.

S. C., Charleston. 11 a.m., Oct. 1.
Electric light, water supply and fire protection system—Bureau of Yards & Docks, Navy Dept., Washington, D. C.

Hawaii, Pearl Harbor. Oct. 22.
Improving power plant here.—Bureau Yds. & Docks, Navy Dept., Washington, D. C.

Sask., Unity. 6 p.m., Oct. 15.
Supplying and erecting one internal combustion engine, one generator excitor, switchboard, transformers, meters, etc.; supplying one oil storage tank, pole, wire and line material; erecting electric pole line, power station and cooling chamber.—Murphy & Underwood, Engrs., Saskatoon.

FIRE EQUIPMENT.

D. C., Washington. 2 p.m., Sept. 29.
Furnishing 3 combination chemical and hose wagons, 3 fire engines and 1 aerial hook and ladder truck, all to be motor driven, for use in fire dept.—Purchasing Officer, D. C., 320 Dist. Bldg.

N. J., Rumson. 8 p.m., Oct. 2.
Installing rotary pump complete on 2 Boyd fire trucks and new radiator on each truck.—D. A. Naughton, Boro. Clk.

O., Elyria. noon, Sept. 29.
Furnishing one automobile combination pumping engine and hose car and one automobile combination chemical engine and hose car.—H. A. Beck, Dir. Pub. Safety.

BRIDGES.

Idaho, Boise. 2 p.m., Oct. 1.
Steel highway bridge on concrete substructure across Sanke River at Homedale—Director of Highways.

Ill., Springfield. 10 a.m., Oct. 1.
2 rein. concrete bridges in Randolph Co.—G. F. Burch, bridge Engr., Div. of Hwys.

Ia., Cherokee. 8 p.m., Oct. 1.
Concrete retaining wall along small stream.—Wm. Shardlow, City Clk.

Kan., Topeka. 11 a.m., Oct. 1.
3 rein. concrete bridges in Mitchell Co.—Co. Clerk.

Kan., Hutchinson. noon, Oct. 10.
Concrete bridge work in Reno Co.—C. H. Stewart, Co. Clk.

Mich., Lansing. 1.30 p.m., Oct. 8.
Bridge across Rush Bed drain in Venice Twp., Shiawassee Co., 35-ft. rein. concrete girder with 18-ft. roadway and two 8-ft. plain concrete abutments.—F. F. Rogers, State Hwy. Comr.

Mich., Lansing. 1.30 p.m., Oct. 1.
Two 15-ft. plain concr. abutments containing 247 cu. yd. concr. for trunk line bridge No. 290, across Macon River in Monroe Co.; also one 55-ft. through plate girder encased in rein. concr., with 20-ft. roadway for above bridge.—F. F. Rogers, State Hwy. Comr.

Mich., Lansing. 1.30 p.m., Oct. 1.
One 45-ft. concrete girder with 20-ft. roadway and two 13-ft. abutments on Bridge No. 36; one 40-ft. concrete girder with 20-ft. roadway and two 10-ft. plain abutments on Bridge No. 325; one 35-ft. concrete girder with 20-ft. roadway and two 7-ft. plain abutments on Bridge No. 326, all in Saginaw Co.—F. F. Rogers, State Hwy. Comr.

Minn., Moorhead. 2 p.m., Oct. 1.
Bridge over Buffalo River, involving five 30-ft. I-beam spans, reinforced concrete approaches; one 80-ft. truss span with concrete floor, five reinforced piers and two reinforced concrete abutments, including piles, 20-ft. roadway.—A. O. Houghum, Co. Aud.

N. J., Trenton. 10.30 a.m., Sept. 29.
Four reinforced concrete bridges in Camden Co.—A. L. Grover, Chief Clk., State Hwy. Comr.

N. J., Elizabeth. 2:30 p.m., Oct. 1.
2 culverts and ditched concrete gutter in Cranford; repairs to bridges in Linden.—J. L. Bauer, Co. Engr., 120 Broad St.

N. C., Santa Fe. Oct. 6.
Concrete bridge across Arroyo Mascaros—Bd. Co. Comrs.

O., Cincinnati. noon, Oct. 10.
Concrete Bridge No. 3 in Green Twp., Hamilton Co.—Co. Surv.

O., Painesville. Oct. 10.
Retaining wall.—R. S. Belknap, Sec. Bd. Park Comrs.

O., Akron. 10 a.m., Oct. 1.
Substructure of bridge.—L. M. Kauffman, Clk., Bd. Co. Comrs.

O., Cincinnati. noon, Oct. 3.
Wood block floor for bridge over M and E canal.—A. E. Mittendorf, Pres., Bd. Co. Comrs.

Pa., Bloomsburg. 2 p.m., Sept. 30.
Repairing 3 bridges.—J. C. Brown, Engineer, Exchange Hotel.

Pa., Ebensburg. noon, Sept. 29.
Repairing bridge at Thomas' Mills over Chest Creek in Cambria Co., but furnishing and erecting certain steel members.—H. T. Jones, Co. Contr.

Pa., Harrisburg. Oct. 3.
12 and 14-ft. span bridges in Armstrong Co.; 12-ft. span, Crawford Co.; 8 and 12-ft. spans, Susquehanna Co.; 10-ft. span, Venango Co.; 10-ft. span, Wyoming Co.; also superstructure for one 42-ft. clear span through reinforced concrete girder bridge in Fayette Co. and superstructure for one through plat girder highway bridge in Sullivan Co.—L. S. Sadler, State Hwy. Comr.

S. D., Sturgis. 2 p.m., Oct. 7.
Heavy bridge over Belle Fourche River, 270-ft. span, 16-ft. roadway.—State Hwy. Comr., Pierre.

MISCELLANEOUS.

Ala., Florence. 11 a.m., Oct. 15.
Furnishing and erecting 3 steel traveling tower derricks.—U. S. Engr. Office.

Colo., Denver. Oct. 1.
Furnishing balanced needle valves, high-pressure emergency gates and sluice gate for north tunnel of Pathfinder Dam, North Platte Project, Nebraska-Wyoming.—A. P. Davis, Chief Engr., U. S. Reclamation Service.

Ind., Greenfield. 2 p.m., Oct. 4.
Drain.—C. Boone, Engr.

Mass., Hingham. Oct. 1.
Dredging at naval ammunition depot here.—Bureau of Yds. & Docks, Navy Dept., Washington, D. C.

Mich., Detroit. 11 a.m., Oct. 8.
Dredging in St. Clair river at Port Huron.—U. S. Engr. office.

Minn., Sacred Heart. 10 a.m., Oct. 10.
Three county ditches.—A. O. Schmidt, Co. Aud.

Minn., Olivia. Oct. 7.
Ditch in Renville Co.—F. M. Shepherd, Engr.

Mo., St. Louis. 11 a.m., Oct. 6.
150,000 cu. yd. earthwork by hydraulic method in Muscatine-Louisiana levee dist., Ia.; also 145,000 cu. yd. earthwork by hydraulic method in Drury drainage dist., Ill.—Secy., Mississippi River Commission, 1311 International Life Bldg.

N. J., Atlantic City. 2 p.m., Oct. 2.
Harbor improvement involving 723,000 cu. yd. excavation, 4,000 lin. ft. sod banks for retaining fill, 1,050 lin. ft. 1,300 lb. cleats.—J. W. Hackney, City Engr., City Hall.

N. J., Bayonne. 11 a.m., Sept. 30.
Furnishing automobile for Dept. Streets and Pub. Impvts.—C. J. O'Neill, City Clerk.

N. J., Elizabeth. 2.30 p.m., Sept. 30.
Tunnels at Bonnie Burn Sanatorium, including engineering and electric work.—Oakley & Son, Archts., 1259 Clinton Pl.

N. Y., New York. noon, Oct. 10.
Furnishing a dipper dredge.—U. S. Engr. Office, Army Bldg., 39 Whitehall St.

O., Ashtabula Harbor. 11 a.m., Sept. 30.
Rubble mound extension of west breakwater.—U. S. Engr. Office, Cleveland.

O., Cleveland. noon, Oct. 3.
Furnishing three-ton truck for city farm, Dept. of Pub. Welfare.—Comr. Purch. & Supplies, City Hall.

Pa., Natrona. noon, Oct. 3.
Lock and dam in Allegheny River near here.—U. S. Engr. Office, Pittsburgh.

Pa., Philadelphia. 2 p.m., Sept. 30.
Installing sprinkler system in ammunition storehouse.—Officer in charge of construction, Frankford Arsenal.

Pa., Philadelphia. noon, Oct. 15.
Repairing dike in Delaware River at Bulkhead Bar.—U. S. Engr. Office.

S. C., Charleston. noon, Oct. 16.
Dredging proposed 40-ft. channel in Copper River.—U. S. Engr. Office.

S. D., Ravinia. 8 p.m., Oct. 7.
Tile drainage system.—F. A. Shepherd, To. Clk.

STREETS AND ROADS.

Ariz., Mesa.—City soon receives bids building 10 mi. cement walks. About \$25,000.

Ariz., Safford.—Graham Co. election has been called for Dec. 9 to vote 5% road bonds to amount of \$250,000.

Ariz., Tucson.—Election in Pima Co., Sept. 23, on \$1,500,000 road bonds. Address Co. Clk.

Cal., San Francisco.—Four northern counties are planning bond issues for good roads. They are Marin, Colusa, Butte and Humboldt counties.

Cal., Woodland.—Yolo Co. will receive

bids until Oct. 6 for \$1,000,000 5 per cent semi-annual average highway bonds. Certified check for 1 per cent is required.

Colo., Denver.—It is planned to extend Mount Evans Highway to top of peak; estimate, \$46,000. Address J. E. Maloney, Chief State Engr.

Colo., Loveland.—Announcement from Loveland is that \$30,000 will be spent in graveling highway leading from Loveland to Big Thompson Canon. Cost is to be borne by State Highway Commission and Larimer County.

Fla., Daytona.—City voted \$450,000 bonds to pave various streets.

Fla., De Funiak Springs.—Election held to vote following bonds: Street and park, \$15,000; paving, \$15,000; water extension, \$11,000; cemetery, \$10,000.

Fla., Fort Pierce.—Bd. of Comrs. of St. Lucie Co. changed from Sept. 16 to Oct. 7 the date for holding election on issuance of \$700,000 road construction bonds. The Chmn.

Fla., Live Oak.—Election held Oct. 14 upon issuance of \$700,000 of road construction bonds by Suwanee, Co. Chairman, Bd. of Co. Comrs.

Fla., Okeechobee.—Okeechobee Co. Comrs. will co-operate with State Highway Dept. in construction of main cross-state highway from Arcadia to East Coast; made appropriation of \$210,000 out of proceeds of recent bond issue. State Road Dept., Wm. F. Cocke, Comr., Tallahassee, Fla. This road probably will be of brick construction.

Fla., Okeechobee.—Okeechobee Co. Comrs. will construct system of roads through county, connecting Fort Drum, Bassinger and other points. The Chairman.

Ga., Columbus.—Ordinance introduced in City Council providing for paving

2d Ave. from 17th St. to city limits, nearly 1 mi.; also for paving 15th St. for two blocks; material not specified. D. L. Parmer, Mayor.

Ga., Milledgeville—Board of Comrs. of Baldwin Co. was requested by citizens in mass meeting to order election upon issuance of \$100,000 of bonds for improving roads and \$25,000 of bonds for improving school buildings. G. C. McKinley, Chairman.

Ga., Washington—Bids will be received until Sept. 16 for \$300,000 road bonds of Wilkes Co.; 5 per cent. L. T. Goolsby, Clk. of Co. Comrs.

Ida., Lewiston—City Council is to take further steps in deciding upon extensive plans for improvement of grades on streets running from downtown section to Normal Hill residence district. Council has fixed boundary of new improvement district. It lies in eastern part of city, and cost estimate approximates \$52,000.

Ida., Lewiston—T. W. Carrick, Engr. for Cramont Highway Dist. reports he will immediately begin survey of road into Deer Creek Mines Dist. Proposed road will be between 12 and 13 mi. long.

Ida., Lewiston—City plans to grade and pave new district in eastern part of city. About \$52,000.

Idaho, Weiser—Washington County passes \$300,000 bond issue for good roads, which assures total of \$600,000. The north and south highway through the county will be completed and additional roads built and improved.

Ind., Brookville—Treasurer of Franklin Co. will receive bids until Oct. 6 for bond issues of \$20,704 and \$10,332 for improvement of two roads.

Ind., Danville—Bids will be received by treasurer of Hendricks Co. until Sept. 29 for bond issues of \$37,000 and \$27,000 for highway improvements.

Ind., Indianapolis—Preliminary orders were made designating wooden block as pavement for resurfacing Maryland St. and two-course concrete for paving first alley east of College, from 27th to 28th Sts. Resolutions were adopted by Board for permanent improvement of Bernard Ave. and Chadwick St., and for grading and graveling Cable St. from Michigan St. to the second alley north of Michigan St.

Ind., Clinton—Election in Clinton Co. Sept. 23, on \$1,800,000 bonds for paving 90 miles of roads. Address Co. Clerk.

Ind., Haines City—Issue of \$120,000 paving bonds voted. Address City Clk.

Ind., Hampton—Graveling road 17 miles long planned. Address County Engr. of Franklin County.

Ind., Leon—Plans being prepared for sheet asphalt, asphaltic concrete, bitulithic, brick or concrete paving on 53 blocks; estimate, \$125,000. Address City Clk.

Ind., Indianapolis—State Bd. of Tax Comrs. has approved bond issues as follows: Hendrick Co., Marion Twp., Hunt Rd., \$27,000; Christie Rd., \$18,200; Elkhart, temporary loan, \$25,000; Geneva, school improvement bonds, \$17,150; Clay Co., Perry Twp., school, \$11,000; Parke Co., Raccoon Twp., school, \$42,000.

Kan., Iola—Until Sept. 29, by Comrs. Allen Co., building 17,110 ft. Sects. A and B, Project No. 21, macadam base with gravel top, also one 28 ft. span arch bridge, 20 ft. roadway, involving 17 cu. yds. concrete and 130 lin. ft. piling. About \$125,000.

Kan., Kansas City—Grading, concrete paving and culverts planned on about 1.25 mi. of Wilson Rd. in Wyandotte Co. Address Co. Engr.

La., Abbeville—Election was held Sept. 23 to vote road bonds to amount of \$350,000.

La., Arendia—Bienville Parish voted \$1,000,000 bonds to build roads.

La., Houma—Issue of \$265,000 road improvement bonds will be sold. Address O. J. Theriot, Secy.-Treas. of Terrebonne Parish.

La., Colfax—Issue of \$210,000 road bonds voted in Dist. No. 8 of Grant Parish. Address Police Jury.

La., Vivian—Attention is called to official advertisement that sealed proposals will be received by F. B. Rieves, Clk., until Oct. 7, for purchase of \$30,000 5 per cent 20-yr. street bonds.

Mich., Jackson—Paving work estimated at \$400,000 is contemplated by city. W. B. Hodges, Engr., City Hall.

Mich., Petoskey—Election planned in Emmet Co. on \$400,000 road bonds. Address Co. Clk.

Minn., Pipestone—Dates have been definitely set for good roads bond election in two more southwestern counties. Rock County will vote Oct. 7 on \$300,000 road

bonds, and Lincoln County on \$250,000 for similar purpose Oct. 14.

Miss., Vicksburg—Election called for Sept. 2 to vote on issue of road bonds to amount of \$500,000 has been postponed until October, owing to error in the notice. J. D. Laughlin, Clk.

Mo., Canton—\$75,000 road bonds have been authorized by vote. Address Town Clk.

Mo., Cabool—Texas Co. has voted on proposition to issue \$225,000 bonds for good roads.

Mo., Fulton—It is planned to improve 19 miles of road in Callaway Co.; estimate, \$140,000. Work includes grading, graveling, bridges and culverts. Address County Clerk.

Mo., Galena—Stone County will receive bids until Oct. 4 for the following named 5 per cent, semi-annual bonds: \$100,000 average road and \$50,000 average court house.

Mo., Monticello—Road: \$125,000. Canton and LaGrange districts. Owner Lewis County, care Clerk, Monticello. Bonds voted.

Mo., Neosho—Granby special road district voted almost unanimously to issue \$37,500 bonds to build good roads.

Mo., Poplar Bluff—Surveys being made preparatory to hard surfacing 100 mi. of roads in Butler Co. Co. recently voted \$500,000 bonds. Address E. C. Nickey, Co. Highway Engr.

Nebr., Omaha—Peters Trust Co. of Omaha was awarded \$1,000,000 of Douglas county highway improvement bonds by Board of County Comrs. Total bond issue authorized by people at election last spring is \$3,000,000. Bids on other \$2,000,000 will be called for as money is required.

N. Y., Brooklyn—Final work on specifications for rebuilding six sections of main traffic highways of Borough of Queens and advertisement for bids will be started at once; \$400,000 has been appropriated for the work.

N. C., Asheville—Announcement was made by T. L. Gwyn, Chmn. of Bd. of Co. Comrs. of Buncombe Co., that contracts have been let by that county for paving of road from Turnpike to Waynesville and that survey of road from Waynesville to Balsam is being made with view to placing a hard surface on this highway.

N. C., Durham—Durham County will receive bids until Oct. 7 for purchase of \$250,000 of 5 per cent. road bonds.

N. C., Elizabethtown—Comrs. Bladen Co. plan to gravel roads. About \$500,000. Address S. P. McNair, Tar Heel, Chm. Co. Highway Comm.

N. C., Gastonia—Gaston Co. has just voted a \$500,000 bond issue for road improvement. Co. Comrs. expect to get like amount from State Hwy. Comm. and plan an extensive road building program.

N. C., Yanceyville—Caswell County will receive bids until Oct. 6 for purchase of \$50,000 of 5½ per cent. road improvement bonds.

O., Bellevue—Erie County road program calls for paving of 18½ miles of state highway at cost \$500,000. Plans and specifications are now ready for Sandusky-Clyde and Lima-Sandusky roads, bids on which will be opened next month by State Highway Comrs.

O., Bucyrus—State Hwy. authorities have approved Bucyrus-Crestline improvement and will include same in next letting. Estimated cost of this road is \$44,000; macadam.

O., Cincinnati—City Council authorized bond issue of \$21,500 for improving Eastern Ave.

O., Ironton—Council decides that it is necessary to improve Sixth St. from the north line of Center St. to the north line of Vesuvius St. and Vesuvius St., Etna St., Lawrence St. by paving with brick, concrete or other suitable material and by constructing curb and gutter of cement or other material. That grade of said streets as improved shall be the existing grades, respectively.

O., Mt. Vernon—Comrs. of Knox County have sold bonds of \$125,478 33 for improvement of Mt. Vernon-Newark, the Columbus-Wooster and the Centerburg-Croton roads.

O., Steubenville—Board of Comrs. will map out extensive road program for coming year. Bond issue adequate for this purpose will be proposed at November election.

O., Tiffin—Bonds for road improvements have been signed by county officials, as follows: \$126,000 for Tiffin-Upper Sandusky road, and \$10,000 for C. L. Ziegler road. Former covers the shares of the county townships and land

owners on 4.35 miles improvement and latter covers share of Bloom Twp. in 4 miles improvement between Seneca and Crawford counties.

O., Toledo—Bd. of Comrs. of Lucas Co. will sell \$47,500 bonds for improvement of Waterville-Swanton Townships Co. Hwy. Impvt. No. 149.

O., Toronto—Contracts for Market Rd. improvement will be advertised immediately.

O., Washington—Council will likely authorize brick pavement along curbs and parking sections in connection with extensive paving program now pending.

Okla., Idabel—City is contemplating paving the residence and business districts as soon as work on system of sanitary sewers is well under way. Johnson & Benham, Consulting Engrs., 8th floor, Firestone Bldg., Kansas City, Mo.

Ore., Albany—Paving on streets that will connect Albany with Pacific Highway at two different points and seven blocks of interior city pavement will be laid this fall if weather permits. City Council awarded contract for all four projects to L. O. Herrold, of Salem.

Ore., Fossil—Scott Sossor, Wheeler Co. Clk., will receive bids on Oct. 8 for \$44,000 in road bonds.

Pa., Bethlehem—City Council passes ordinances appropriating \$8,333.33 for street improvement on North New St., and \$15,012.93 for paving of Main St.

Pa., Hazleton—It is planned to expend about \$500,000 for street improvements. Address Jerry Rough, City Engr.

Pa., Pittsburgh—Will receive bids until Oct. 3 for \$3,621,000 of 4½ per cent semi-annual various street and bridge bonds. Certified check for 2 per cent is required.

Pa., Somerset—Election in Somerset Co. Nov. 4, on \$1,000,000 road bonds. Address Co. Compt.

R. I., Woonsocket—City Council adopted resolutions appropriating \$202,300 for street paving and highway improvements.

S. C., Andrews—City will improve streets, \$40,000 of bonds having been voted. The Mayor.

S. C., Chester—Issue of \$140,000 municipal bonds for improving streets was voted.

S. C., Spartanburg—Bids will be received until Sept. 17 for \$449,500 road bonds of Spartanburg Co. Chmn., Co. Bd. of Hwy. Comrs.

S. D., Huron—It is planned to pave about 35 blocks this year. Address O. A. Ricker, City Engr.

Tenn., Altamont—Messrs. Caldwell & Co., of Nashville, were successful bidders for the 1-40-yr. road bonds to amount of \$200,000.

Tex., Caldwell—Election in Burleson Co. Oct. 18, on \$1,000,000 road bonds. Address W. M. Hillard, Co. Judge.

Tex., Crockett—Election in Dist. Nos. 9 and 10 of Houston Co., Sept. 27, on \$100,000 road bonds, respectively. Address Nat Patton, Co. Judge.

Tex., Corpus Christi—Bids will be received until Oct. 1 for bonds of \$2,000,000 for road work in Nueces County.

Tex., Corpus Christi—Following official announcement that \$2,000,000 bond issue voted in Nueces Co. for modern system of highways had been approved by State Hwy. Comm., word has been received by Co. Judge Hugh H. Sutherland that \$500,000 state aid had been granted Nueces Co., bringing total up to \$2,500,000. Tentative plans based on estimates made previous to the voting of the bonds call for construction of 140 mi. of hard-surfaced highways in Co.

Tex., Fort Worth—City Commission, at regular session, authorized the paving of nine streets and call for bids on the work will be issued.

Tex., Georgetown—Meeting of Williamson County Comrs. and committee, composed of one member from each Justice's precinct, will meet Sept. 24 and decide as to special roads in each precinct that are to be constructed first under plans for good roads inaugurated some months ago and for which bond issue of \$1,500,000 was voted. County has employed R. A. Nichols of Brownwood as chief engineer.

Tex., Lufkin—At a mass meeting of business men the Lufkin Chamber of Commerce was organized with initial membership of seventy, with 300 prospective members. The first work done by the Chamber of Commerce was to order the Commissioners to call a \$100,000 bond election for street paving Oct. 20th.

Tex., Houston—City Council will accept bids until Oct. 1 for street improvement bonds of \$150,000.

Tex., Houston—Mayor A. E. Amerman will receive sealed bids until Oct. 1 for the following 5% bonds: \$700,000 school, \$150,000 street and \$50,000 sewer.

Tex., Lufkin—City plans to issue \$75,000 bonds to improve various streets.

Tex., Marshall—Finishing touches are now being made on county road surveys. Advisory Board met with Comrs. Court for purpose of passing on plans and location of roads prior to submitting them to State Highway Commission.

Tex., Ranger—Election Sept. 30 on \$750,000 paving bonds. Address City Clk.

Tex., Winnsboro—Many improvements are being made here now. Material has been ordered for paving of business part of town and movement is on foot to pave several of principal residence streets.

Va., Richmond—Bill was introduced in the House by Delegate Chase to authorize Board of Supervisors of Wise County to borrow money and issue bonds of \$80,000 for purpose of constructing road along the roaring fork of Powell's River, starting at Richmond district line and extending to village of Purdee.

Wash., Bremerton—Bd. of Co. Comrs. have decided upon campaign to carry through special bonding election amounting to \$300,000. Greater part of fund will be for road building.

Wash., Hoquiam—Co. and city help on arterial highway is to be asked for improvement of paved street through Hoquiam. It is expected that similar action will be taken in Aberdeen. Matter is to be presented to Co. Comrs. at early date.

Wash., Port Orchard—County Comrs. have authorized issuance of road bonds of \$116,000.

Wash., Port Orchard—Plans are being prepared by City Engineer J. L. Berry for 6,000 yds. of paving on Bay St. and 5,000 yds. on Kitsap St.

Wash., Seattle (King Co.)—Messrs. John E. Price & Co., of Seattle, have been awarded issue of 5 1/4 per cent 5-yr. road bonds to amount of \$140,000.

Wash., Walla Walla—Between two and three mi. of hard surfacing along two stretches of road has been authorized by Walla Walla Co. Comrs.

W. Va., Grantsville—Calhoun Co. having plans prepared grading and draining 4.5 mi. Arnoldsburg-Spencer Pike Rd., 24 ft. wide, involving 27,500 cu. yd. excavation and 500 cu. yd. concrete. About \$39,650. E. Starcher, Grantsville, Engr.

W. Va., Grantsville—Calhoun County Court will take bids soon for grading and draining in Arnoldsburg-Spencer Pike. Edwin Starcher, Engr., Grantsville; 27,500 cu. yds. excav.; 500 cu. yds. concrete and drainage structures.

W. Va., Wellsburg—It is planned to expend about \$30,000 for grading, draining and concrete and macadam surfacing on 1 mi. of Wellsburg-Wheeling Rd. in Brooke Co. C. S. Donaldson, Engr.

Wis., Madison—The list of Co. bonding votes for highway purposes up to the present reads as follows: Rock Co., April election, \$1,500,000; Jefferson Co., \$2,000,000; Washington Co., \$2,000,000; Wood Co., \$1,500,000; Racine Co., \$2,350,000. The Dane Co. Bd. will hear a report from a special highway committee in November and will decide on calling a special election on a \$10,000,000 bond issue.

Wis., West Bend—Election, Sept. 2, resulted in favor of issuing road bonds to amount of \$2,000,000.

Wyo., Cheyenne—It is planned to gravel 10 miles of Big Goose Creek Rd. in Sheridan Co. Address D. S. McCalmann, State Highway Supt.

B. C., Vancouver—By-laws calling for expenditure of \$725,000 will be submitted to ratepayers Sept. 30. By-laws to be submitted will be as follows: Schools, \$465,000; roads, repairing and building, \$100,000; repairing Connaught bridge, \$160,000; total, \$725,000. Second reading was given to each of the three by-laws and next action to be taken will be by ratepayers.

BIDS RECEIVED AND CONTRACTS AWARDED.

(*Indicates Contracts Awarded.)

***Ala., Andalusia**—Contract awarded Jamison & Halliwell, Montgomery, Ala., for street paving for 20,000 sq. yds. of vitrolithic and 30,000 sq. yds. of bitulithic paving; \$188,000. M. D. Pace, City Engr.

***Ark., DeWitt**—Arkansas Co. is to have macadam road 85 mi. long costing \$1,690,000. Contract for the work has been awarded Southern Improvement Co., of Little Rock. Road will traverse towns of Almgra, Gillett, St. Charles and De Witt.

***Ark., Helena**—Through two contracts awarded by Comrs. of General Impvt. Dist. of Helena, all unpaved streets in city will be paved and all city drainage canals will be covered. Paving contract, which calls for concrete base with warrenite surface, was given to Southern Bitulithic Co., of Nashville, Tenn., and drainage contract to Hedges-Weaver-Weeks Construction Co., of Springfield, Mo. Paving contract totals \$550,000 and the drainage contract \$150,000. Latter project includes completion of drainage system of North Helena, water from which will be carried through Helena by means of covered canal to Long Lake.

Cal., Sacramento—Early completion of main highway between Auburn and Grass Valley is indicated by opening of bids by State Hwy. Comn. for the paving of between six and seven mi. of road between Auburn and northerly boundary of Placer Co. For this work only one bid has been received by Comn., and this from Augustus J. Fairbanks, of Willits, for \$104,256. This is considerably higher than Hwy. Engr.'s estimate of \$81,206.50. The Comn. also received bids for grading of stretch of road between ten and 11 mi. in length, located between Ione and Jackson in Amador Co. Three bids were submitted, the lowest being T. M. Olney, of Oakland, for \$66,469, compared to Engr.'s estimate of \$62,332.20. Federal Construction Co., of San Francisco, has offered bid of \$21,870 on proposed work of surfacing with asphalt a one and one-half mi. unit located between Visalia and Fulgham's Corners in Tulare Co. Estimated cost of this work is \$17,595. The Advisory Bd. will decide whether bid will be approved.

Cal., Sacramento—Federal Construction Co. was only bidder on state highway in Tulare Co., Div. 4, Route 10, as follows: Portland cement concrete, Class "A" (shoulders), 720 cu. yd., \$9,000; 13,000 sq. yd. asphalt surface, \$12,870; total, \$21,870; Engr.'s estimate was \$17,595.

Cal., Sacramento—T. M. Olney was low bidder on road work in Amador Co., Div. 3, Route 34, Sec. B, Federal Aid Project No. 29, as follows: 44,000 cu. yd. excavation, \$57,200; 260 cu. yd. Portland cement concrete, Class "A" (culv. and mons.), \$7,800; 628 ft. 12-in. pipe, \$628; 150 ft. 18-in. pipe, \$225; 150 ft. 24-in. pipe, \$300; 316 monuments, \$316; total, \$66,449. Other bids were: W. A. Schmidt, Berkeley, Cal.; total, \$99,385; A. J. Fairbanks, Willits, Cal.; \$110,747.50.

Cal., Sacramento—A. J. Fairbanks, Willits, Cal., was only bidder for road work in Placer Co., Div. 3, Route 17, Sec. C, Federal Aid Project No. 28, as follows: Excavation, 26,000 cu. yd., \$41,600; Portland cement concrete, Class "A", 6,500 cu. yd., \$55,900; Portland cement concrete, Class "A" (culv. and mons.), 180 cu. yd., \$4,320; 510 ft. 12-in. pipe, \$357; 270 ft. 18-in. corrugated pipe, \$270; 120 ft. 24-in. pipe, \$168; 2,400 ft. guard rail, \$1,440; 134 monuments, \$201; total, \$104,256; Engr.'s estimate was \$81,206.50.

Cal., Covington—Land owners of East Bear and West Bear Creek sections are organizing drainage district. Will reclaim about 1,200 acres. Co. Agent J. K. Luck can give information. E. W. Adams, H. Z. Hurst and others are interested.

***Ind., Indianapolis**—Contracts were awarded by Bd. of Marion Co. Comrs. for improvements of two roads in the county, the Lee road, which connects a strip of improvement on Southeastern Ave., and the Wisby pike in Wayne Twp. Only one bid was submitted on each improvement. The Premier Constn. Co. with bid of \$67,550, received contract for Southeastern Ave. improvement, and Jas. M. Snyder of Frankfort received contract for the Wisby road at bid of \$66,435.45. The Southeastern Ave. road is to be of bituminous concrete and the Rockville road of concrete.

***Ind., Indianapolis**—Contracts were awarded by Bd. of Co. Comrs. for construction of two roads in Marion Co., the Leed Rd. in Center Twp. and Wisby Rd., a part of Rockville Pike, in Wayne Twp. Only one bid was submitted on each road and no bids were offered on two other roads advertised. Southeastern Ave. road contract was let to Premier Construction Co. on bid \$67,550. Bid was \$25 less than cost calculated by J. J. Griffith, Co. Surveyor. Mr. Griffith explained unusual cost of the improvement as due to fact that new concrete arch is included and course of Pleasant run has to be changed for distance of 1,600 ft. The Rockville Pike contract was let to James M. Snyder, of Frankfort, on bid \$66,435.45. Surveyor's estimate was \$68,218.77. Rockville Pike improvement is to be of concrete, the Lee Rd. of bituminous concrete, a grade of asphalt.

***Ind., La Porte**—State Hwy. Comn. has awarded Federal Paving Co., of Chicago, contract for building Lincoln Hwy., in Lake Co., from Schererville east to Porter Co. line, distance of 11.38 mi. Bid was \$373,156.38. The Comn. estimate was \$418,424.62. State Senator James J. Nejd, of Whiting, was next lowest bidder, with a bid of \$13,554.52 less. Two other Lake Co. bidders on the job were the Municipal Construction and Supply Co., of Gary, \$523,602.12; the United Construction Co., of Hammond, \$412,382.12.

***La., New Orleans**—Mr. W. A. Prather, contractor, Baton Rouge, La., was awarded following work: Lafayette-Opelousas highway, 1.68 mi., for \$8,455.75; Lafayette-Breaux Bridge highway, 2.46 mi., for \$21,143.90; Lafayette-Youngsville highway, 3.28 mi., for \$26,099.55; Lafayette-Abbeville highway, 3 mi., for \$28,476.70. All above highways will be surfaced with gravel. Contract for construction of New Orleans-Chef Menteur highway, Orleans Parish, La., was awarded to A. B. Blakemore Constn. Co., New Orleans, La., at \$78,026.40. This highway is 14 miles and is considered an important project, due to fact that it connects with City of New Orleans.

***La., New Orleans**—Two bids were received by State Hwy. Dept. for construction of Alexandria-Oberlin Hwy., Rapides Parish, La., 19.80 miles long. The Alexandria Constn. Co., Alexandria, La., \$205,270.13, and C. I. Wilson, Hattiesburg, Miss., \$166,882.70.

***Mich., Mt. Clemens**—J. H. Mathews, City Clk., soon lets contract laying 24-in. vitrified crock reinforced concrete sewer with 6-in. concrete shell on outside in Crocker Ave. About \$25,000.

***Miss., Columbus**—Contract has been awarded Henry C. Terry, this city, by City Council to pave streets in business section with cement; \$44,600. D. S. McClanahan, Mayor.

***Mont., Whitefish**—At recent meeting of City Council bids were opened for constructing concrete walks, curbs and gutters on Spokane and Kalispell Aves. Two Miracle Co. bid \$18,170.40; Mayfield & Perry, \$19,434, and C. H. Kelly, \$18,762. Contract was awarded to first-named.

***N. Mex., Santa Fe**—Contract has been awarded Burgess & LaRoe, of Palestine, Tex., for construction of Federal Aid Project No. 11, Lincoln Co., N. Mex., located between Capitan and Fort Stanton; length, 5.4 mi., at cost of \$42,661.08.

***N. Mex., Santa Fe**—Contract was awarded Lea Co. Construction Co., Lovington, N. Mex., for construction of Federal Aid Road Project No. 16, in Lea Co., N. Mex., 5.4 mi. in length, at total cost of \$39,517.24.

***N. J., Haledon**—The borough wishes to enter the trunk sewer through Paterson. Clerk of Borough Council.

***N. Y., Dunkirk**—New York State Health Dept. has again demanded that the city shall install sewage disposal plant in order to guard against danger of pollution of water supply.

***O., Bryan**—County Comrs. have ordered improvement of Bryan-West Unity road from Youse Corner on Bryan-Stryker macadam road through Pulaski to West Unity. County surveyor will make plans and estimate at once.

***O., Columbus**—State Hwy. Dept. let contracts amounting to \$2,109,535.44 for improvement of 86.796 mi. of road. Two sections of Cadiz-Carrollton Rd., in Harrison Co., were let to L. B. Wilson, of Newark, at \$75,119.25. One section of Milan-Elyria Rd., in Lorain Co., went to Elyria Construction Co., at \$46,511.16. The Foster Reichert Construction Co., of Dayton, with bid of \$24,595.50, was awarded work on section of the Dayton-Indianapolis Rd. in Montgomery Co. Williams & Little, of Cleveland Heights, with bid of \$83,842.02 was awarded section of the Dayton-Germantown Rd. in Montgomery Co. Oather M. Junk, of Chillicothe, was low bidder on two sections of Dayton-Chillicothe Rd. in Ross Co. His bid was \$15,902.75 for brick and \$25,876.86 for concrete, on one section, and \$15,417.26 for brick and \$22,785.86 for concrete on the other. With bid of \$57,770.60, the S. Monroe & Sons Co., of Portsmouth, was awarded contract for section of Portsmouth-Jackson Rd., in Scioto Co. The Seiple-Wolf Construction Co., of Youngstown, was low bidder on section of Canton-Dover Rd., in Tuscarawas Co. Their bid was \$38,579.90.

***O., Youngstown**—Millcreek Park Comn. is planning to pave all driveways in park, work to be extended over a period of years. Lyonel Evans, Park Supt., states that number of dangerous curves will be eliminated. Asphaltic concrete

OFFICIAL ADVERTISING

Pennsylvania State Highway Department, Harrisburg, Pa.—Sealed proposals will be received at the State Capitol until 10:00 A. M., September 30, 1919, when bids will be publicly opened and scheduled, and contracts awarded as soon thereafter as possible for the reconstruction of the following pavements: 11,640 linear feet of One Course Reinforced Concrete in Armstrong County; 9,577 linear feet of pavement, consisting of 5,856 linear feet of Bituminous Surface Course on present foundation and 3,721 linear feet of Bituminous Surface Course on a Concrete Foundation in Bucks County; 12,947 linear feet of either One Course Reinforced Concrete and Hillside Vitri-fied Brick or Vitri-fied Brick and 6,634 linear feet of One Course Reinforced Concrete in Cambria County; 5,326 linear feet of Vitri-fied Brick in Centre County; 28,292 linear feet of either Bituminous Surface Course on a Concrete Foundation or One Course Reinforced Concrete and 21,619 linear feet of One Course Reinforced Concrete in Chester County; 4,265 linear feet of either Bituminous Surface Course and Hillside Vitri-fied Brick on a Concrete Foundation or One Course Reinforced Concrete in Clinton County; 18,514 linear feet of One Course Reinforced Concrete and Hillside Vitri-fied Brick in Crawford County; 26,713 linear feet of either One Course Reinforced Concrete or Bituminous Surface Course on a Concrete Foundation in Delaware County; 37,521 linear feet of either Bituminous Surface Course on a Concrete Foundation or One Course Reinforced Concrete and 32,316 linear feet of One Course Reinforced Concrete in Erie County; 25,164 linear feet of One Course Reinforced Concrete and Hillside Vitri-fied Brick in Fayette County; 23,201 linear feet of One Course Reinforced Concrete in Greene County; 19,618 linear feet of One Course Reinforced Concrete in Lancaster County; also 110,170 linear feet of One Course Reinforced Concrete and Hillside Vitri-fied Brick in Westmoreland County. Bidding blanks and specifications may be obtained free, and plans upon payment of \$2.50 per set, upon application to State Highway Department, Harrisburg, Pa. No refund for plans returned. They can also be seen at office of State Highway Department, Harrisburg; 1001 Chestnut Street, Philadelphia, and 904 Hartje Building, Pittsburgh, Pa. LEWIS S. SADLER, State Highway Commissioner.

Bids received until October 13, 1919.

Notice to Contractors

BOROUGH OF WALLINGTON, N. J.

Separate sealed proposals will be received by the Mayor and Council of the Borough of

Wallington, N. J., for the construction of a storm water sewer with appurtenances in Mt. Pleasant Avenue, between Paterson Avenue and a point distant 2,200 feet east of Paterson Avenue, and in Paterson Avenue, between Mt. Pleasant Avenue and the storm water culvert distant 1,470 feet northwest of Mt. Pleasant Avenue; for the grading, curbing and flagging of said Mt. Pleasant Avenue, between Paterson Avenue and Zemplin Avenue; for the installation and construction of park sections along the center of Mt. Pleasant Avenue; and for the construction of an asphalt bound macadam pavement or a concrete pavement on said Mt. Pleasant Avenue, between Paterson Avenue and Zemplin Avenue. The approximate quantities for the above improvement are as follows:

7,672 cubic yards excavation.
1,216 cubic yards filling.
1,330 cubic yards filling (rich soil) for park sections.
15,956 linear feet concrete curb with curb protectors.
26,960 square feet concrete flagging.
13,704 square yards asphalt bound macadam, or concrete, pavement.
500 linear feet bluestone header curb set in concrete.
3,606 linear feet 36-inch reinforced concrete pipe, or double-strength vitri-fied sewer pipe.
280 linear feet 12, 15, 18, 20 and 24-inch vitri-fied sewer pipe.
3,880 linear feet trench between 6 and 18 feet in depth.
10 M. B. M. lumber.
10 manholes.
11 standard catchbasins.

Proposals, specifications and other information may be obtained at the office of the Borough Engineer, Anton L. Pettersen, Post Office Building, Passaic, N. J.

Each bid must be accompanied by a certified check for two thousand dollars (\$2,000), drawn to the order of Joseph Denboske, Collector of the Borough of Wallington. The work is to be completed on or before June 1, 1920, and will be paid for with cash or five per cent. (5%) improvement certificates.

All bids must be presented in sealed envelopes, addressed to the Street Committee of the Borough of Wallington, and endorsed with the name of the contractor and the name of the improvement for identification, on Monday evening, October 13, 1919, at 8:00 o'clock, in the Council Chamber, Municipal Building, Wallington, N. J.

The Mayor and Council of the Borough of

Wallington reserve the right to reject any or all bids.

By order of the Mayor and Council.

CORNELIUS POLMANN, Borough Clerk.

Dated Wallington, N. J., September 24, 1919.

Bids received until October 15, 1919.

Notice to Contractors

STATE OF NEW YORK

Office of the State Commission of Highways
ALBANY, N. Y.

Sealed proposals will be received by the undersigned at their office, No. 55 Lancaster Street, Albany, N. Y., at 1 o'clock P. M. on Wednesday, the 15th day of October, 1919, for the improvement of the following highways:

CLINTON COUNTY—Two highways—0.49 and 1.57.
COLUMBIA COUNTY—One highway—7.34.
ERIE COUNTY—One highway—3.54.
ESSEX COUNTY—One highway—1.09.
HAMILTON COUNTY—One highway—6.72.
ROCKLAND COUNTY—Two highways—0.59 and 0.50.
SCHENECTADY COUNTY—One highway—0.63.
SCHOHARIE COUNTY—Two highways—5.25 and 3.79.
MONTGOMERY COUNTY—One highway—3.70.

And Also for the Completion of the Following Highways:

BROOME COUNTY—Three highways—5.35, 6.93 and 4.70.
FRANKLIN COUNTY—One highway—1.99.
LIVINGSTON COUNTY—One highway—8.34.
ONEIDA COUNTY—One highway—8.26.
SCHENECTADY COUNTY—One highway—6.33.
WASHINGTON COUNTY—One highway—6.98.

Maps, plans, specifications and estimates may be seen and proposal forms obtained at the office of the commission in Albany, N. Y., and also at the office of the division engineers in whose division the roads to be improved and completed are located. The addresses of the division engineers and the counties of which they are in charge will be furnished upon request.

The especial attention of bidders is called to "General Information for Bidders" on the itemized proposal, specifications and contract agreement.

FREDERICK STUART GREENE,
Commissioner.

ROYAL K. FULLER, Secretary.

to be recommended. Cost, between \$30,000 and \$35,000 per mi.

Pa., Franklin—Sewage disposal plant, \$200,000. Elk st. Consulting Engr. Morris Knowles Jones, Law Bldg., Pittsburgh, Pa. Preliminary survey. Consulting engineer selected.

Pa., Harrisburg—State Hwy. Dept. announced that contracts have been awarded for road construction in Adams, Butler, Clarion, Indiana, Tioga and Warren Cos.

The awards were as follows: Adams Co., Gettysburg Borough, Route 43, Lincoln Hwy., and 126, 7,857 ft. of construction—W. P. McDonald Construction Co., Philadelphia, \$109,769.40.

Butler Co., Slippery Rock Twp., Route 73, Sec. 5, 14,044 ft. of reinforced concrete—Norman J. Boyer, Butler, Pa., \$134,699.50.

Clarion Co., Clarion Twp., Route 64,

Sec. 1, 16,417 ft. of reinforced concrete: L. H. Hileman Construction Co., New Kensington, Pa., \$164,870.50.

Indiana Co., Blairsville Borough, 3,812 ft. of reinforced concrete—M. Bennett & Sons, Indiana, Pa., \$54,138.80.

Warren Co., State Hwy. Route 253, 7,936 ft. of reinforced concrete—Ridelsperger & Savage, Warren, Pa., \$60,689.90.

Tioga Co., Lawrence Twp. and Lawrenceville Borough, Route 22, 24,112 ft. of construction—Adams, Evans Co., 30 Church St., New York, N. Y., \$191,286.91.

Wash., Kelso—Contract for grading and graveling the last section of Pacific Highway to be brought to permanent grade was let by the State Hwy. Bd. to Henry & McFee, of Seattle, whose bid was \$241,317. This project includes seven mi. from Castle Rock north and involves much heavy grading.

Wash., Spokane—City having prelim-

inary plans prepared for building 5.5 mi. laterals and sectional sewers in Sewer Dist. No. 13. About \$100,000. A. D. Butler, City Engr.

Wis., Madison—Two bids were received on Wisconsin Federal Aid Project No. 39, Sheridan Rd., Racine Co., as follows: Michie Constr. Co., Milwaukee, Wis., earth excavation, 2,258 cu. yd., \$2,483.80; for concrete in culverts, \$391.60; concrete surfacing, \$22,119.75; guard rail, \$2,412.30; borrow excavation, 4,556 cu. yd., \$6,834; total, \$34,241.45, and J. R. Griffith Co., Racine, Wis.; total bid, \$34,414.97.

Wis., Madison—McCullough & Cheney, 440 Temple Court, Minneapolis, Minn., awarded contract for work on Project No. 96, Beloit-Janesville Rd., Rocky Co., on following bid: Earth excavation, 18,028 cu. yd., \$12,980.16; concrete surfacing, 63,312.9 sp. yd., \$141,504.32; concrete

headers, 16 sq. yd., \$35.76; 510 ft. guard rail, \$306; concrete in culverts, 277.9 cu. yd., \$6,947.50; protecting 136.5 ft., \$34.13; borrow, excavation, 859 cu. yd., \$618.48; total, \$162,426.36.

SEWERAGE AND SANITATION

Cal., Brawley—City plans election to vote on \$125,000 bonds to extend and improve water works system. G. R. Wade, City Engr.

Del., Wilmington—Bonds of \$300,000 sewer and street improvement have been sold.

Gla., De Funiak Springs—Election was held to vote on bonds of \$25,000 for construction of sewers.

Fla., St. Augustine—City plans election soon to vote on \$500,000 bonds to install sewerage system, extend water service, build auditorium and pave streets.

Fla., Winter Garden—Issuance of \$15,000 of municipal bonds for constructing sewer system was voted. W. H. Reams, Mayor.

Ind., Charitan—Plans are being drawn for sewage disposal plant and septic tank. W. B. Householder, City Clk.

Kan., Girard—City plans to improve water works system. About \$44,000. W. B. Rollins & Co., 209 Ry. Exch. Bldg., Kansas City, Mo., Engrs.

Mass., Chicopee—Two bids for new sewer on Roosevelt Ave., which is to relieve pressure on Springfield St. line, have been submitted to Sewer Com. of Board of Aldermen. Cordner & Montague, the firm which took contract for Exchange St. sewer, are low bidders, estimate being \$21,065, or \$284 less than bid of Rivers & Young. The specifications call for 1,970 ft. of sewer and 3 manholes.

Mich., Caro—Caro Water Co. plans to build pumping plant and reinforced concrete storage reservoir. About \$25,000. Private plans.

Mich., Marysville—Wills-Lee Co. plans to lay pipe line from here to Port Huron city limits to connect with Port Huron water mains, one line to connect at 24th and Moak Sts., Port Huron, and other at Military and Ravenswood Sts., Port Huron, to supply water for construction purposes at plant here. Work involves 25,000 ft. 10-12-in. c. i. pipe. W. H. Watkins, Marysville, Engr.

Mich., Royal Oak—Meadowcrest Subdivision of Baker Land Co. will receive bids for sanitary sewers and sewerage treatment. Estimate, \$30,000. Engr., Clarence W. Hubble, 2338 Penobscot Bldg., Detroit, Mich.

Minn., Faribault—An issue of sewer bonds to amount of \$38,500 was purchased by Citizens National Bank and Security Bank, jointly.

Minn., Luverne—City voted \$24,000 bonds for sewer. Engr. Johnson, Sioux City. John Bauer, Clerk.

Mont., Musselshell—City plans to install complete water works system. About \$28,000. R. Bushnell, Roundup, Engr.

Mont., Ryegate—City is considering issuing \$60,000 sewer bonds.

Mo., Columbianna—Bond issue for sewer construction will probably be made; amount, \$130,000.

Mo., Kirksville—City plans to improve water works system. About \$30,000. W. B. Rollins & Co., Ry. Exch. Bldg., Kansas City, Engrs.

Neb., Broken Bow—City is advertising for bids for construction of system of sanitary sewers. Plans and specifications may be had from Grant, Fulton & Letton, Engrs., Bankers Life Bldg., Lincoln.

N. H., Manchester—Complete reorganization of sewer system is proposed and \$15,000 appropriated for survey. It is estimated that ultimate expenditure of over a million will be necessary.

N. Y., Brooklyn—Local Bds. of Newtown and Jamaica Distrs. plan to construct many sewers.

N. C., Greensboro—City plans to build sewer extension. About \$25,000. W. B. Bandy, Greensboro, Engr.

O., Barborton—\$500,000 will be expended on sanitary sewage system of this city. Work is now in progress on west side system which will cost \$125,000 and north end service which will cost \$80,000. City Engr. H. W. Alcorn states this work will be finished by first of year and that similar systems will be built in north and east portions of town.

O., Cincinnati—City Council passes ordinances providing for bond issue of \$41,400 for cost of improving by sewerage Robertson Ave. Sewer to be placed in Bates Ave. also.

O., Toledo—Finance Director Martin will receive bids for \$850,000 water works bonds. These are in two issues, \$400,000 for enlarging filtration equipment and \$450,000 for extension of mains.

Okl., Davis—The Hanchett Bond Co. of Chicago recently purchased sewer bonds to amount of \$78,000.

Pa., Allentown—Plans for new sanitary system to be installed at estimated cost of \$500,000 are practically completed. Address Clk. of Council.

Pa., Erie—Sewage Disposal Plant; \$667,500. City Engr. F. G. Rynch, City Hall, Erie, Consulting Engrs., Chester & Fleming, Union Bank Bldg., Pittsburgh, Pa. W. J. Henry, City Clk., City Hall, Erie, Contemplated.

S. C., Batesburg—City will improve sewers and waterworks, \$100,000 bonds having been voted. Nisbet Wingfield, Engr., Augusta, Ga.

S. D., Lemmon—Work has commenced on task of installing new sewerage system in Lemmon. System will cost nearly \$100,000 and will be pushed to completion as speedily as possible.

Tex., Dallas—Bids for Winnetka Heights storm sewer improvement to complete connections with city system in district west of Tyler St. were ordered by City Com. The improvement will cost \$190,336.47. The storm sewer work is preliminary to extensive paving operation. It is planned to pave Davis, 8th, 9th and Willomet Sts. in the near future.

Tex., Houston—See "Streets and Roads."

Tex., Houston—City Council will receive bids until Oct. 1 for bond issue of \$50,000 for sewers.

Tex., Plainview—City Council has voted to spend \$50,000 on sewer improvements, making it more sanitary, by moving plant further from city limits and putting in new Imhoff tank. 9,000 ft. of 15-in. main will be laid and improvements will be made to system in city limits.

Tex., Port Lavaca—Drainage bond issue is to be voted on in Drainage Dist. No. 5, lying north of Port Lavaca, Co. seat of Calhoun Co. The election calls for bonds to amount of \$21,600.

Tex., San Antonio—Drainage works; \$200,000, and garbage and incinerator plant, \$100,000. Fred Fries, City Clk. Bonds voted.

Tex., San Antonio—Bonds of \$500,000 have been voted for construction of sanitary sewers. F. Fries, City Clk.

W. Va., Charleston—Bond issue of \$300,000 for sewers has been carried. Engr., E. Bruce, Charleston Natl. Bank Bldg.

W. Va., Wheeling—City Mgr. Chas. O. Ephlin will submit recommendations for new sewerage facilities. Improvements proposed will be extensive and will be taken up by Council at once.

Wis., Marion—Will make survey soon for sewerage system. Engr., L. P. Pelishek, Clintonville, Wis. V. L. Morriset, Clerk.

Wis., Milwaukee—Steps for expenditure of \$3,500,000 for extensions and additions to city water supply system were recommended by common council water works and sewers committee. Comr. of Public Works was directed to call for bids and begin construction of 9-ft. concrete tunnel, 7,300 ft. long, from shore end of Linnwood Ave. water intake to site of the proposed new pumping station on west side of Milwaukee River, opposite foot of Linnwood Ave. This tunnel will cost \$480,000. Following completion of this work, which will take a year or more, the building of the new pumping station will be started. The city en-

EQUIPMENT BARGAINS

Bulletin No. 270—60 pages—is a

SURE MONEY SAVER

Get it—before buying

Contractors' Equipment, Cars, Ralls, Mixers, Engines, Piling, Pipe, Bridges, Tanks.

ZELNICKER IN ST. LOUIS

CITY MANAGER WANTED

City Manager Wanted. City 12,000 population. Growing rapidly. Located in the middle west. Salary to start, \$3,000.00 a year. Vacancy caused by failing health.

Address: Mayor, Care of the Municipal Agency & Public Works 243 W. 39th Street, New York City

gineer was instructed to prepare plans for \$3,000,000 water filtration plant to be built along lake shore at north end of Lake Park and to ask War Dept. for permission to build breakwater 1,500 ft. from the shore. Filtration plant will be built inside this breakwater.

Mexico—State engineer in a city in Mexico desires to purchase 600 best quality water meters. Recording apparatus must be above water line in meter owing to lime deposit in water. There is urgent need for these meters. Correspondence may be in English. For further information apply to Bureau of Foreign and Domestic Commerce, Washington, D. C. Oppor. No. 30616.

BIDS RECEIVED AND CONTRACTS AWARDED.

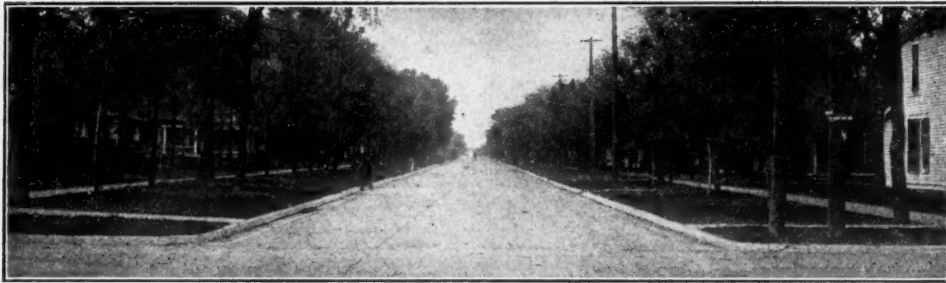
(*Indicates Contracts Awarded.)

***Ind., Indianapolis**—Contract for local sewer in Minnesota St. and Sheffield Ave. at \$5.54 a lin. ft., total of \$109,331.30, was awarded J. H. King & Co., by Board of Public Works. Charles Schwert received contract for cement sidewalks in 40th St., from Rookwood Ave. to Byram Ave., at \$3.75 a lin. ft., total \$3,187.50.

Ind., Waterloo—There were five bids submitted for sewer work, which consists of lifting pumping station and the laying of several sizes of sewers in Soash Park addition and adjacent territory. The Dearborn Co.'s bid, when figured in its entirety for vitrified tile pipe, was \$47,562.50, the lifting station being \$5,585 of this amount. By an error in addition this bid was figured at \$46,562.50. The Moore-Seig Co.'s bid aggregated \$47,184, of which \$6,078 was for the lifting station. Other contractors who submitted bids were M. S. Jackson, Cedar Rapids; Harness Bros., Ottumwa, and Anderson & Empe, Marshalltown. By the revised figures supplied by W. D. Johnson, City Engr., the Moore-Seig Co. is lowest bidder by \$378.50.

***Kan., Chapman**—Contract was awarded Reed & Wheelock, Clay Center, Kan., at \$53,040.45 for construction of sanitary sewers and storm drains. Riddle & Riddle Engrs. Contract was awarded C. H. Everett, Hutchinson, Kan., for \$32,449.20 for construction of sanitary sewers in Enterprise, Kan. Riddle & Riddle, Engrs.

Neb., Omaha—Jens Jensen was low bidder on two sewer projects for which City Council has opened bids. One was extension of Florence storm sewer system, the Jensen bid being \$82,228; other district is along Railroad Ave., south of Washington St., low bid for which was \$17,919.



"Practical Street Construction"

Many books have been written upon paving streets. Others upon artistic treatment, but this is the only one treating of alignment, grade and cross section, the location of sewers and other underground construction, the above ground appurtenances, such as manholes, fire hydrants, fire alarm boxes, street signs and a score of other features that go to make up a complex, modern city street.

"Practical Street Construction" considers each in respect to its interrelation with all others. Each chapter is of real practical value. Diagrams and photographs are used in abundance—never merely for decorative purposes but for the instructive ideas which they illustrate.

Chapters include:

- Planning Street Alignment
- Diagonal Thorofares
- Planning Thorofares
- Street Widths
- Sidewalk Widths
- Gutters
- Local and Elastic Streets
- Street Cross-sections
- Motor Traffic and Street Grades
- Intersection Grades
- Sidewalks

Written by A. Prescott Folwell

242 pages—151 illustrations

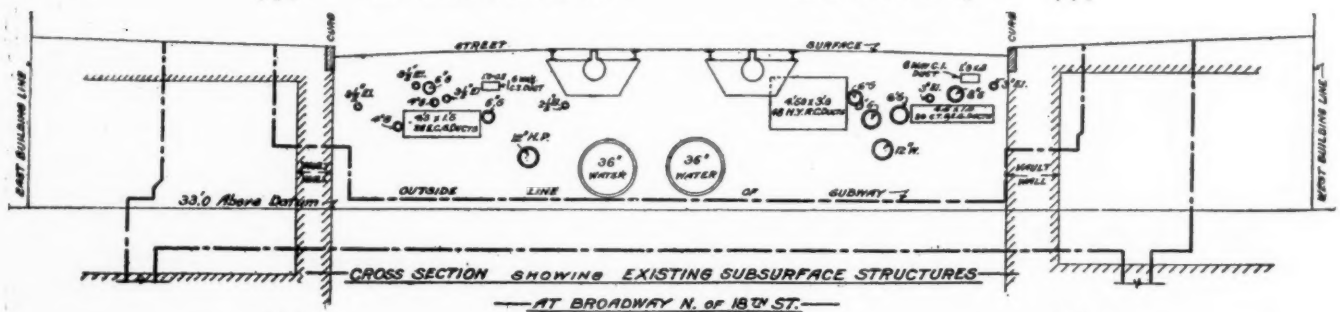
Price \$2.00

MUNICIPAL JOURNAL AND PUBLIC WORKS

(Publisher)

243 West 39th Street

New York City



WATER WORKS EQUIPMENT

APPROVAL HERSEY DETECTOR METER

The Hersey Detector Meter has been accepted for thirteen years in 3, 4, 6, 8, 10 and 12" sizes without any restrictions or conditions of any kind by every Insurance Company, Stock and Mutual, doing business in the United States, and by the Water Departments and Water Companies in more than 600 Cities and Towns for use on over 4,000 Fire Services protecting over \$2,000,000,000. worth of Insured Property.

HERSEY MANUFACTURING COMPANY
BOSTON NEW YORK CHICAGO COLUMBUS, O
PHILADELPHIA ATLANTA SAN FRANCISCO

"Turnkey Jobs"

Our Service is Complete, as our organization includes Engineers, Field Construction Forces and Factory Facilities which puts the burden of getting results on us—Hence the Guarantee

"Water, or No Pay"

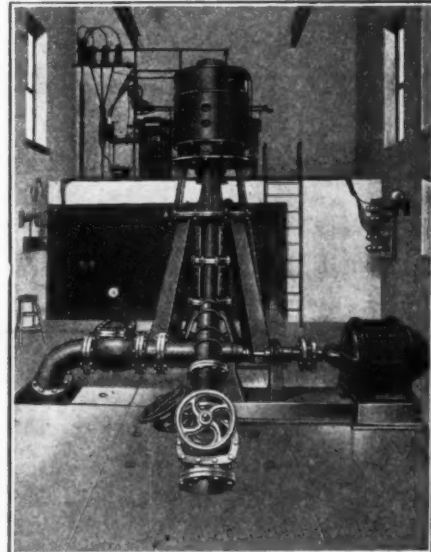
We Write It in the Contract

Write today for Information and Free Literature.

Layne & Bowler Company

"World's Largest Water Developers."

759 Randolph Building
Memphis, Tenn.



SERVICE AND FIRE PROTECTION

Layne Deep Well Turbine Pump ordinarily operating against service pressure by-passing horizontal Turbine. Horizontal Turbine is cut in for fire pressure.



CLARK

STANDARDIZATION AFFORDS—EFFICIENCY—ECONOMY—PROTECTION—CONVENIENCE

Large meters are housed in the same manner as the small ones. Uniformity throughout. Fits the lawn, paved street, concrete walk—anywhere. Proven to be RIGHT through use of thirty years. The Clark line of water works materials is extensive. Send for catalogue.

H. W. Clark Co., 1508 Broadway, Mattoon, Ill., U. S. A.
NEW YORK SALT LAKE CITY SAN FRANCISCO CHICAGO

S. E. T. SPECIALTIES

INCLUDE

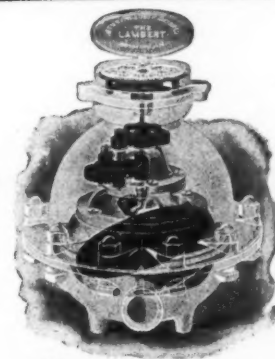
METER BOXES CURB BOXES
VALVE HOUSINGS
MANHOLE FRAMES AND COVERS
GRAY IRON CASTINGS
FOR ALL PURPOSES

Let us quote you on your requirements

S. E. T. VALVE & HYDRANT CO.
HUDSON TERMINAL BUILDING, NEW YORK

Lambert

Meters



Manufactured by
THOMSON METER CO.
100-110 BRIDGE ST., BROOKLYN, N. Y.

WATER SUPPLY

Ark., Hot Springs—Water works to be improved at cost of \$200,000. Secretary of Hot Springs Water Co.

Del., Wilmington—Bonds of \$90,000 for water works improvements have been sold.

D. C., Washington—Suburban Sanitary Comm. plans soon to improve water system of Takoma Park, Md. Address Secy. of Comm.

Fla., De Funiak Springs—See "Streets and Roads."

Ill., Elmhurst—Distributing system and water mains, combined sewers and sewage disposal plant, \$250,000. Engr., Edw. Hancock, 2047 Ogden Ave., Chicago. M. Hommerschmidt, Pres., Elmhurst. Drawing plans.

La., Avoca—An issue of \$12,000 5 per cent waterworks bonds were awarded Schanke & Co., Mason City.

La., Jonesboro—Town has voted \$28,000 bond issue for water works. Dr. J. H. Landrum, Chmn. Supervising Bd., Rd. Dist. No. 1, Jackson Parish.

Md., Elton—An issue of \$80,000 water bonds were awarded Baltimore Trust Co. and Hamilton & Co., Baltimore, jointly.

Mass., Marlboro—George A. Stacy, Supt. of Water and Sewer Dept., is making considerable extension of sewer system, which will be of great service in development of the city, now growing rapidly.

Mass., Haverhill—City has authorized \$45,000 water main extension bonds.

Minn., Foley—Plans have been submitted to Town Council for water system and sewage disposal. Estimate, \$50,000.

Mo., Kirksville—City having plans prepared for water works improvements to cost \$30,000. I. C. Cawthers, City Clk.

Mo., Plattsburg—City plans to build water works at cost of \$70,000. Bonds to be voted on April 5, 1920.

Nev., Winnemucca—Co. plans to spend \$25,000 on water works improvements. Address Sec., Winnemucca Water & Light Co.

N. J., Hawthorne—Bond issue of \$20,000 for water main extension has been ordered by Bd. of Comrs. Address the Chmn.

N. J., Sayreville—Twp. Com. has ordered plans to be prepared for water and sewage systems. Address Chmn. of Com.

Oh., Akron—Water works expansion program, involving bond issue of between \$5,000,000 and \$6,000,000, has been suggested by city officials as most practical method of providing a supply sufficient to meet rapidly increasing demands of city.

Oh., Bowling Green—Business men have subscribed \$55,000 for second mortgage bonds of City Water Co. These bonds will furnish money for improvements in water supply source. City has received promise of another Heinz plant if reliable water supply is guaranteed.

Oh., Newark—Local Bd. of Health has condemned water supply of this city. Mayor Atherton is in favor of construction of filtration plant and will so recommend. Engrs., Barbour & Bradbury, Commercial Bldg., Columbus, have recommended chlorine system of filtration, which would cost \$224,000.

Oh., Newton Falls—Town will issue bonds of \$12,000 for extending water mains and digging new wells.

Oh., Norwood—Plans being made for water-softening system to cost \$50,000. Allen Kissinger, Water Works Engr., City Hall.

Oh., Portsmouth—Sealed proposals will be received for water works extension amounting to \$30,000. L. A. Zucker, City Audr.

Oh., Toledo—The \$850,000 city water works extension bonds will be taken by Stacy & Braun. Their bid was highest of three opened by Finance Director Martin. The bonds are in two issues on which bids were: Water works main extension issue of \$450,000—Stacy & Braun, \$1,552.50 premium; Hayden, Miller & Co., of Cleveland, \$1,534.50; Sidney Spitzer &

Co., \$773. Filtration plant improvement issue, \$400,000—Stacy & Braun, \$1,380 premium; Hayden, Miller & Co., \$1,364; Sidney Spitzer & Co., \$687.

Oh., Wellington—City will vote Oct. 6 on bond issue of \$25,000 for construction of water mains.

Okla., Altus—City voted \$45,000 bonds to extend water works. Johnson & Benham, Kansas City, Mo., Engrs.

Okla., Chickasha—Has voted against \$20,000 water plant system bonds.

Okla., Collinsville—Comrs. have called special election to vote bonds of \$40,000 for water filtration plant and improvements to pumping station. Johnson & Benham, Consulting Engr., Firestone Bldg., Kansas City, Mo.

Okla., Collinsville—Bonds in amount of \$40,000 for construction of modern water filtration plant were voted at special election held Sept. 3. Bonds have been sold. Plans and specifications being prepared by Johnson & Benham, Consulting Engineers, 8th floor, Firestone Bldg., Kansas City, Mo. No date for letting has been set.

Okla., Hartshorne—Bonds carried for filtration plant to cost \$25,000. Engineers working on plans. J. Merrill, City Clerk.

Okla., Hobart—Plans being made for water works to cost \$120,000, and bond election will be called within 30 days. Engr., V. V. Long, Engr. Com., 1300 Colcord Bldg., Oklahoma City.

Okla., Oklahoma City—Ponca City water works bond to extent of \$50,000 were approved by Attorney General.

Okla., Pauls Valley—Election will be held Sept. 27 to vote water extension bonds to amount of \$20,000.

Okla., Randlett—Installation of water supply system is planned. Address the Mayor.

Okla., Shattuck—Bond issue of \$75,000 for water works and electric light improvements is approved and plans are being drawn. Engrs. Bruns & McDonnell, 400 Interstate Bldg., Kansas City, Mo.

Ore., La Grande—New concrete dam is ordered for enlargement of water supply system. Address City Clk.

Ore., Vale—Immediate action to improve water supply system is urged. Address Mayor.

Pa., Lockhaven—It is proposed to extend water mains and install meters on all industrial services. Mayor Copper.

S. C., Chester—Issue of \$35,000 bonds for improving and extending waterworks system was voted. The Mayor.

S. C., Chester—Vote on \$35,000 bond issue for water works is carried. Address Clk. of Council.

S. D., De Smet—Bond issue of \$75,000 for standpipe in connection with water works is under consideration.

Wash., Wenatchee—Council is having plans prepared for extension of water system, at cost of \$50,000. Clk. of Council.

Wis., Brillion—Extensions of water mains is to be made. Address the Mayor.

Wis., Milwaukee—Council and Waterworks Sewerage Committee adopted resolution calling for plans for proposed \$3,000,000 filtration plant for city's waterworks system. Reservoir would be located off Linnwood Ave. and connected with the intake tunnel by a tap. After filtration the water would be distributed to North Point pumping station and Linwood Ave. mains.

Wis., Rhinelander—Water supply system; \$75,000. Engr., N. H. Smith, Jno. D. Gilligan, City Clk.

Wis., Sheboygan Falls—Installation of air-lift and centrifugal pump is soon to be undertaken and bids will be called for by Bd. of Pub. Utilities.

BIDS RECEIVED AND CONTRACTS AWARDED.

(*Indicates Contracts Awarded.)

***Mo., Marysville**—City let contract building two reservoirs, reinforced-concrete coagulatory plant, reinforced concrete storage plant, two 600 g. p. m. motor-driven pumps, and one 7,000 g. p. m. low-service pump, to Randall Constr. Co., Kansas City, \$35,500.

***Mo., Weston**—City let contract extending pipe line and building well and concrete reservoir to C. P. Breen, Parkville, \$13,400.

***Mich., Grosse Pointe Farms**—Contract let to Walker-Teetaert Co., 919 Majestic Bldg., Detroit, Mich., at \$50,000, for furnishing and laying of 8,435 ft. of 10 to 36-in. pipe for storm sewers. All pipe to be of vitrified clay. R. H. Erley, Engr.

LIGHTING AND POWER

Ind., Bluffton—The Fletcher-American Co., of Indianapolis, was the successful bidder for an issue of 6 per cent 5-year Municipal Light Plant bonds to the amount of \$15,000.

Kan., Langdon—City has voted \$15,000 electric power bonds.

Kan., Langdon—Proposition to issue electric light bonds to amount \$15,000 was favorably voted at recent elections.

Miss., Lexington—The issue of \$40,000 5½ per cent electric light bonds was awarded Wilson Banking Co., Greenwood.

Neb., Guide Rock—At special election the proposition to issue bonds for electric lights carried. The VII. Board is considering two or three deals for the furnishing of current.

N. D., Fargo—City of Fargo contemplate municipal light plant; \$175,000 bonds voted for plant. John E. Hogan, Comsr.

O., Canton—\$25,000 bond issue for erection of municipal artificial gas plant was passed at special election.

Okla., Chelsea—Attorney General has approved issuance of electric light bonds to amount \$30,000.

Okla., Chelsea—Chelsea has had \$30,000 electric light bonds registered.

S. D., Spearfish—Charles R. Cooper City Audr., informs that election held on Sept. 16 was carried in favor of issuing \$50,000 water works bonds, which will be offered as soon as possible.

FIRE

Mass., Webster—Proposed that town appropriate \$11,500 to buy automobile triple combination fire truck. This will give town an all-motor department.

N. Y., Gasport—Town plans to install fire protection. Secy. of Council.

N. Y., Horseheads—New apparatus is to be bought for Dept. Willis Wightman, Chief Engr.

Pa., Rochester—Special election will be held on \$15,000 bond issue for motor apparatus.

S. D., Sioux Falls—Arrangements are being made for city to purchase local electric light plant and operate it in the future as municipal system. Necessary improvements will be made and scope of the plant enlarged.

W. Va., Parkersburg—City has appropriated \$27,450 for fire equipment. Address Chief of Dept.

Wis., Marinette—City to be bonded for \$24,000 in order to motorize one of city fire department houses.

BRIDGES

Cal., Oakland—Election planned in Alameda Co. on \$850,000 bonds for bascule bridge over estuary at Webster St. Address Co. Clk.

Del., Wilmington—Bids will be received shortly for Washington St. Bridge. Address B. H. Davis, Engr.

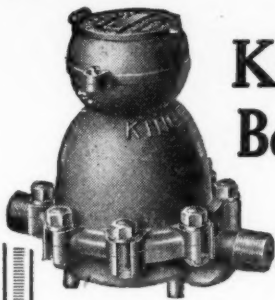
Fla., Ft. Pierce—Com. is being organized to construct bridge over Indian River. \$30,000 of stock has been subscribed.

Minn., Moorhead—Clay County. Survey completed for Bridge No. 3216, Barnesville Twp., over Whiskey Creek. Plans with Minnesota State Highway Comsn., 920 Guardian Life Bldg., St. Paul. Andrew Hougum, Co. Auditor.

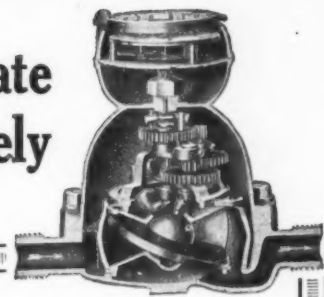
Minn., New Ulm—Brown County. Survey completed for bridge in Burnstown Twp., over Big Cottonwood River. Plans with Minnesota State Highway Comsn., 920 Guardian Life Bldg., St. Paul. L. G. Vogel, Co. Aud.

Minn., Sauk Center—Ready for bids soon for bridge; private plans. J. F. Cooper, City Clerk.

Mont., Butte—Co. Engr. W. E. Chapman condemned Mooney bridge, which spans Beaverhead River near Daly's spur.



King Disk Meters Are Accurate Because They Are Built Accurately



A water meter must do more than merely indicate on a dial an amount of water—it must measure and record **accurately**. A water meter must do this for more than a few months—its accuracy must be **lasting**.

This principle of **lasting accuracy** is the idea of service behind every KING DISK METER.

The design is simple—from the water passages to the register dial. All internal parts are assembled in a working unit, readily accessible for inspection without

removing the meter from the service pipe.

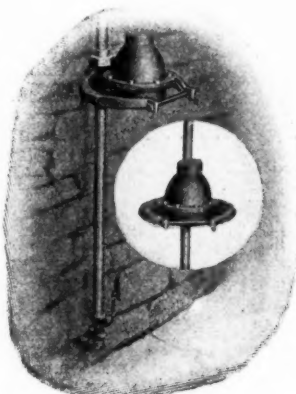
Materials are the best that can be obtained for their specific purposes. Monel metal for the spindles and screws, hard rubber gears and Monel pinions mean minimum friction and long wear—and lasting accuracy.

The same UNION quality goes into every one of the whole range of UNION products—"Nilo" meters, corporations, curbs and waste stops, cement-lined pipe presses. We have made waterworks specialties since 1868—we have improved designs with our increasing experience—but we could not improve quality. That has always been the best.

UNION WATER METER CO., Worcester, Mass.



As Simple as an "S" Wrench



Simplicity is an outstanding characteristic of the Ford "Ram's-Horn" Yoke for Basement meter settings. It is *almost* as Plain and Strong as the vertical pipe of which it really becomes a part. And it's as *Standard* as a $\frac{3}{4}$ -inch water pipe.

That's the Ford feature back of the Saving that these yokes make possible where conditions *demand* cellar meter settings. *Lower* installation costs with *Fords* because time and labor are both cut to the very *limit*.

No strain on pipe because the connections line up *perfectly*. And the Ram's-Horn connects to any standard $\frac{3}{8}$ -inch water meter (with $\frac{5}{8}$ or $\frac{3}{4}$ -inch spuds). No meter connection needed. Big Direct Passages practically *eliminate* flow resistance.

The FORD METER BOX CO.
WABASH, INDIANA, U.S.A.

Neb., Henry—V. B. Kirkham, Clk. of Scotts Bluff Co. (Gering), soon lets contract building 600-ft. reinforced concrete bridge, 16 ft. wide, to have twelve 50-ft. arches. Work involves 1,100 cu. yd. reinforced concrete, 10,000 lin. ft. wooden piling and 30,000 cu. yd. earth approach and fill. About \$70,000.

Neb., Morrill—V. B. Kirkham, Clk. of Scotts Bluff Co. (Gering), soon lets contract building 600-ft. reinforced concrete bridge, 16 ft. wide, to have twelve 50-ft. arches. Work involves 1,100 cu. yd. reinforced concrete, 10,000 lin. ft. wooden piling and 30,000 cu. yd. earth approach and fill. About \$70,000.

Neb., Minatare—V. B. Kirkham, Clk., Scotts Bluff Co. (Gering), soon lets contract building 600 ft. reinforced concrete bridge, 16 ft. wide, to have twelve 50-ft. arches. Work involves 1,100 cu. yd. reinforced concrete, 10,000 lin. ft. wooden piling and 30,000 cu. yd. earth approach and fill. About \$70,000.

Neb., Scotts Bluff—V. B. Kirkham, Clk. of Scotts Bluff Co. (Gering), soon lets contract building 600-ft. reinforced concrete bridge, 24 ft. wide, to have twelve 50-ft. arches. Work involves 1,820 cu. yd. reinforced concrete, 13,200 lin. ft. wooden piling, 41,289 cu. yd. earth approach and fill, 3,332 cu. yd. clay and 1,003 cu. yd. gravel surfacing. About \$100,000.

N. D., Lakota—Petition granted for bridge over Sheyenne River, in Sheyenne valley. Henry Telander, Co. Aud.

N. D., Lakota—Petition granted for bridge over Sheyenne River in Sheyenne Valley. Address Henry Telander, Co. Aud.

Ok., St. Clairsville—Comrs. have rescinded action approving plans for bridge over McMahan Creek in Bellaire, and have ordered engineer to prepare plans for concrete structure instead.

Oh., Cleveland—Bridge planned over Big Creek at W. 73d St. Address Co. Engr. of Cuyahoga Co.

Pa., Gettysburg—Bids will be received shortly by Co. Comrs. of Adams Co. for three bridges.

Pa., Harrisburg—Hwy. Dept. announced that it would build seven more concrete bridges on state highways and make improvement to bridges in Vanderbilt Boro., Fayette Co., and Davidson Twp., Sullivan Co.

Wis., Grand Rapids—Plans being prepared for 500-ft. bridge here; estimate, \$210,000. Address M. W. Torkelson, State Bridge Engr., Madison.

Wis., Mukwonago—Plans being prepared by State Highway Comm., Madison, for reinforced concrete deck girder bridge here, 230-ft. spans, baluster railings and concrete abutments.

BIDS RECEIVED AND CONTRACTS AWARDED.

(*Indicates Contracts Awarded.)

***Mont., Great Falls**—Work on two reinforced steel and concrete bridges across Missouri River here will be started at once, according to John N. Edy and Paul D. Pratt, engineers of State Hwy. Comm. Porter Bros., of Spokane, have been awarded contract for \$57,840. The one at 10th St. will be 1,130 ft. long, exclusive of approaches, and will have eight spans. It is 36 ft. wide and clears high water mark by 18 feet. Ave. N bridge is 965 ft. long, exclusive of approaches, and is 58 ft. wide. It has seven spans.

***S. C., Chester**—Contract has been awarded Lutten Bridge Co., Knoxville, Tenn., by Hwy. Comm. of Chester Co., to

construct 5 reinforced concrete bridges; \$48,990. A. E. Legare, Co. Engr.

MISCELLANEOUS

Del., Wilmington—\$400,000 harbor improvement bonds have been sold.

Ind., Indianapolis—City budget has been submitted to Council, calling for expenditures of \$4,985,000.

Ia., Davenport—Walsh Construction Co., of Davenport, has just secured million-dollar contract which will result in double tracking of the Big Four Railroad in two states, joining Indiana and Ohio. Contract calls for double tracking of 30 mi. of road between Union City, Indiana and Bellefontaine, Ohio. Work will require 600,000 yds. of grading, as also necessary track laying, ballasting and bridge work. The building of bridges is but a small part of work of the Walsh Construction Co. They have closed contracts for erection of two such structures. One for New York State Barge Comm. near Schenectady, N. Y., other at Scranton, Pa. The two contracts will total \$700,000. Another contract secured by Walsh Co. is for General Motors Co. in St. Louis. They will do all grading for their new million-dollar plant in that city. It will require removal of 250,000 cu. yd. of earth.

Mass., Boston—All \$15,000,000 one-yr. 6 per cent notes of New York Central Railroad, which were offered for subscription on a 6.40 per cent basis by syndicate headed by J. P. Morgan & Co. have been sold.

Mass., Lynn—A. J. Grossman has purchased the Breed property in Lower Washington St. and will spend \$200,000 improving it. It is planned to dredge the lot to give harbor frontage of 158 ft.

Mich., Grand Rapids—With purchase of tank carload of tarvia, totaling 10,000 gals., the city will wind up its contract with Barrett Co., and City Comm. probably will instruct Purch. Agent James Kinney to advertise for bids for supply to carry city through remainder of the season.

Minn., Duluth—Highland Park Council named first Saturday in November for general election to vote on bond issue of \$200,000 to complete Highland Park Hospital, which will contain 110 rooms and will employ 60 nurses.

Minn., St. Paul—The House passed bill presented by Hennepin County delegation authorizing Minneapolis to issue \$500,000 in bonds to relieve financial difficulties of Minneapolis school board.

Mont., Billings—City election Sept. 30 to vote on \$75,000 bonds to improve park. E. M. Sneckenberger, City Engr.

***N. J., Highland Park**—Borough Council of Highland Park awarded on recommendation of Streets and Roads Committee contracts for furnishing materials for paving of Lincoln Ave. from Raritan to Lawrence Aves. and Park Place to Igoo Brothers, of Newark, for reinforced concrete; Brown, Rose & Co., of South River, for cement, and Conrad Sebott, of this city, for sand and crushed stone, they being the lowest bidders. The work of paving these streets will be done under supervision of Boro. Engr. Hopkins, who expects to start Lincoln Ave. next week. All connections for sewer, gas and water have been practically completed.

N. J., Newark—Ironbound Trust Co., of Newark, was successful bidder for \$515,000 4% per cent hospital bonds.

Oh., Sandusky—Bids for deepening channel in Sandusky Bay, for which city has ordered issue of \$50,000 to be used in connection with federal appropriation of \$181,000, are expected to be advertised soon. Government engineers have completed specifications for the work.

Oh., Canton—City Council proposes to issue bonds of \$13,550 for construction and installation of police and fire telegraph system in city.

Tex., Cleburne—Cleburne Chamber of Commerce is going to start campaign through committees to bring about results under following heads: Housing campaign, city-wide street paving, commission management form of city government, increased fire protection through additional equipment, investigation of need of fire station in Northeast Cleburne, increased train service, centrally located park with shade trees and benches, fall style show and special sale day during the fair, including "clean up and paint up" campaign; arrangements for a dam system on Buffalo Creek and creation of large lake near the city, playgrounds with suitable equipment, the suggestion of additional vocational courses in high school, the development of comprehensive city plan, governing future growth of city; cement paths and walks at all school buildings, development of suitable seal for Johnson Co., organization of a co-operative grain elevator, organization of a storage warehouse for cotton and other products, etc.

Tex., Houston—Approval of plans and specifications for North Main St. tunnel was given by the City Council. Plans were submitted by City Engr. J. C. McVea, and by Engrg. Dept. of Southern Pacific Railroad, whose tracks are to pass over tunnel.

Va., Norfolk—Revenue estimated at \$15,000 a year will come to city as result of contracts which have been concluded for removal of garbage from city by Virginia Live Stock Association. Contract provides that city garbage carts remove garbage to three stations which will be built by the live stock association, from which it will be taken by trucks of the association to hog-feeding plant which will be established. Price to be paid for garbage will be based on average price of pork during the month. If the average price of pork is 15 cents a pound on the hoof, the association will pay 75 cents a ton for garbage.

Australia—Cable quotations F. O. B. New York are desired by man in Australia on two steam hammers of 3,000-pound blow for driving wooden piles and two electric pile-driving friction winches for same purpose. For further information apply to Bureau of Foreign and Domestic Commerce, Washington, D. C. Oppor. No. 30599.

South Africa—Electrical engineering department of municipality in Africa requires different kinds of electrical equipment, such as twin conductor lead-covered cable, triple concentric cable, boiler tubes, centrifugal pump and motors, recording ammeters, single-phase transformers, sundry supplies, etc. Inquiry forms and blueprints were forwarded and may be examined at bureau or its district offices. (Refer to file No. 123,150.) Tenders should be forwarded by mail at earliest possible moment, to arrive by Oct. 1, if possible. Apply to Bureau of Foreign and Domestic Commerce, Washington, D. C. Opportunity No. 30566.

TOO LATE FOR CLASSIFICATION

BIDS ASKED FOR

STREETS AND ROADS.

Ia., Dubuque. 8 p.m., Oct. 2. Improving streets, involving 528 lin. ft. combination Portland cement curb and gutter, 600 sq. yd. telford macadam, etc.; also 3,636.66 sq. yd. brick block on concrete foundation or 3,305.55 sq. yd. bitulithic on old base or tarvia on old base; 100 lin. ft. new cement curbing, etc.—J. Stuber, City Recorder.

Minn., Duluth. 11 a.m., Sept. 29. Improving alley.—J. A. Farrell, Comr. Pub. Wks.

N. Y., Albany. 1 p.m., Oct. 15. Completing 8.26 mi. waterbound macadam highway in Oneida Co.—F. S. Greene, State Hwy. Comr.

Oh., Wauseon. Sept. 27. Improving road in Clinton Twp. and the Archbold-Westbarre Rd.—J. F. Dimke, Twp. Clk.

SEWERAGE.

Ia., Dubuque. 8 p.m., Oct. 2. Sanitary sewer, involving 240 lin. ft. 8-in. tile pipe and two manholes.—J. Stuber, City Recorder.

Minn., Duluth. 11 a.m., Sept. 29. Sanitary sewer in city street and alley.—J. A. Farrell, Comr. Pub. Wks.

N. J., Wallington. 8 p.m., Oct. 13. Storm water sewer with appurtenances in city street as part of street improvements.—A. L. Pettersen, Boro. Engr., Post Office Bldg., Passaic.

N. J., Wallington. 8 p.m., Oct. 13.

Curbing, flagging and grading, constructing park sections and paving street with asphalt bound macadam or concrete pavement, laying storm water sewer and storm water culvert, involving 7,672 cu. yd. excavation; 1,216 cu. yd. filling; 1,330 cu. yd. rich soil filling for park sections; 15,956 lin. ft. concrete curb with curb protectors; 26,960 sq. ft. concrete flagging; 13,704 sq. yd. pavement; 500 lin. ft. bluestone header curb set in concrete; 3,606 lin. ft. 36-in. reinforced concrete pipe, or double-strength vitrified sewer pipe; 280 lin. ft. 12 to 24-in. vitrified sewer pipe; 3,880 lin. ft. trench between 6 and 18-ft. deep; 10 manholes and 11 standard catch basins.—A. L. Pettersen, Boro. Engr., Post Office Bldg., Passaic.

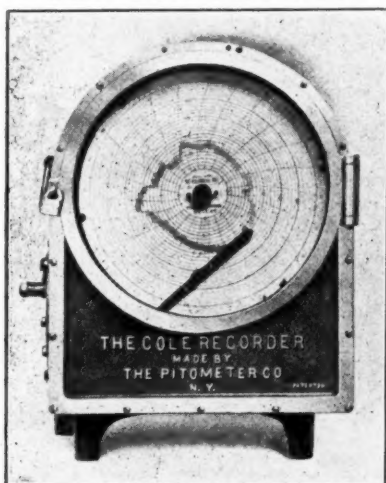


Present Day Conditions demand higher Efficiency in water works operation

The increased cost of production including the higher costs of fuel, labor and material are making conservation measures more and more necessary. The record of the actual daily and hourly supply of water must be obtained if you are to operate your plant to the top notch of efficiency and economy.

The Cole Recording Pitometer is portable. Install it in your pumping station and use it also for checking up manufacturing consumers, testing large meters, analyzing the supply, determining by trunk main tests which of your main feeders are overtaxed and which are not doing their share, locating underground losses, etc.

The Cole Recorder



Our illustrated booklet on the Cole Pitometer System will be sent free for the asking. Every municipal official ought to be acquainted with the greater possibilities for efficiency and economy in water works operation which are mentioned in this catalog.

The Pitometer Company
27 Elm St., New York

N. Y., Buffalo. 11 a.m., Oct. 6.
Ten-in. tile sewer in three streets and three 33.6 ft. 10, 12, and 15-in. tile sewer in one street.—A. W. Kreinheder, Comr. Pub. Wks.

O., Akron. noon, Sept. 29.
Sewer in city street.—H. H. Morse, Dir. Pub. Serv.

O., Circleville. Oct. 6.
Three sewers complete.—L. Schneider, Dir. Pub. Serv.

LIGHTING AND POWER.

Wash., Seattle. 10 a.m., Oct. 3.
Constructing and installing additional unit to city's present steam plant.—C. B. Bagley, Secy., Bd. Pub. Wks., 234 County-City Bldg.

Wash., Seattle. 10 a.m., Oct. 17.
Furnishing hydroelectric machinery involved in construction and installation of additional unit in Cedar Falls hydro-

electric station.—C. B. Bagley, Secy., Bd. Pub. Wks., 234 County-City Bldg.

BRIDGES.

O., Youngstown. 11 a.m., Sept. 29.
Reinforced concrete box culvert in Coitesville Twp., Mahoning Co.—Co. Surveyor.

Pa., Beaver Falls. Sept. 30.
Concrete bridge over Little Beaver in Darlington Twp.—J. M. Geer, Clk., Bd. Comrs.

STREETS AND ROADS.

Ark., Hot Springs.—City closed deal with Fordyce & Field, engrs., for extensive paving in business dist., which will cost \$60,000. Paving will cover 15 blocks and is only part of plan for final paving of three times the amount for which contract is now awarded.

Ida., Caldwell.—Although no bond issues are being considered by Co. Comrs. for Canyon Co., approximately \$125,000 is to be spent this fall and next spring.

Ida., North Fork Highway Dist.—Road bonds, recently voted, to amount of \$140,000 were sold to Messrs. Clark, Kendall & Co., of Portland.

Ill., Hwy. Comrs. of various townships of Macon Co. have asked total of \$254,400 for road and bridge work next year and Supvrs. authorized Co. Clk. to extend such rate as would produce that sum.

Ind., Burlington.—Assurances that Cannon Ball Trail, from Burlington to Peoria, will be paved in 1920, have been received from State Hwy. Comn.

Ky., Paris (Bourbon Co.)—Election, Sept. 6, authorized road bonds to amount of \$500,000.

Minn., Lake Benton.—Lincoln Co. election, Oct. 14, to vote \$250,000 good road bonds. A. L. Swenson, Co. Audr.

Minn., Pine City.—An issue of 5 per cent semi-annual road bonds to amount of \$100,000 has been sold to Messrs. Kallman, Matteson & Wood, of St. Paul.

Miss., Carthage (Leake Co.)—An issue of road bonds to amount of \$150,000 has been purchased by Leake Co. Bank of Carthage.

Mo., Clinton.—Henry Co. has voted bonds of \$150,000 for road work in Windsor, Clinton and Fairview Twp.

Mo., Neosho.—Bonds to be voted soon for road work in Granby Rd. Dist., Newton Co. Estimate, \$37,500.

Mont., Glendive.—\$200,000 road bonds have been carried at election in Dawson Co. W. F. Nye, Co. Audr.

Mont., Hamilton.—\$200,000 road bonds were carried at election in Ravalli Co. F. E. Robbins, Co. Audr.

Mont., Missoula.—Bids for work on three highway projects in Missoula Co. will be called for shortly by State Hwy. Comn. Projects are, removal of Marshall grade, improvement of existing highway from St. Ignatius to Ronan and improvement of highway from Ronan to Co. line north of Tablo.

O., Springfield.—Legislation for grading roadways and sidewalks on four streets in north side, at cost of \$22,000, has passed Council. City Mgr. O. E. Carr has plans and specifications, bids on which will be advertised shortly.

Ore., Albany.—Bids will be received Oct. 11 for \$100,000 worth of Linn Co. road bonds. This is first block of bonds to be sold from the \$600,000 issue authorized at special election last June. The remaining \$500,000 worth of bonds will not be sold until next year.

R. I., Woonsocket.—City appropriated \$16,800 to pave and curb North Main St.; \$49,400, to pave Social St.; \$67,000, to pave Cumberland St.; also \$49,000, to pave with granite blocks South St.

Tenn., Brownsville (Haywood Co.)—Co. Court has authorized issuance of road bonds to amount of \$200,000.

Tenn., Cleveland.—Messrs. John Nuveen & Co., of Chicago, have been awarded issue of 5½ per cent St. Impvt. Dist. No. 1 bonds to amount of \$50,000.

Tenn., Nashville.—Election, Sept. 25, on \$180,000 street improvement bonds. Address City Clk.

Tex., New Braunfels.—Comrs.' Court of Comal Co. has ordered election Sept. 27 to vote on question of issuing \$175,000 30-year 5 per cent. bonds. This money will be used for building and improvements of roads over the county.

Tex., Sulphur Springs.—Campaign for \$2,000,000 good roads bond issue to be voted Sept. 28 is being waged in every part of county.

Wash., Mt. Vernon.—Bid of Lumber-

men's Trust Co., of Portland, Ore., for purchase of \$350,000 road bond issue was accepted by Bd. of Co. Comrs. of Skagit Co.

Wash., Olympia.—J. H. Dirks & Co., of Seattle, was low bidder at \$161,248, for grading 5½ mi. of highway from Nasel to Bar River, Pacific Co. State Hwy. Comn. has suspended letting of contract.

W. Va., Wheeling.—Legislation for paving with brick six streets, at expense of \$113,000, has passed Council.

N. B., St. John.—A comprehensive street paving proposition to cover a period of four years and involving expenditure of from \$800,000 to \$1,000,000, is to be prepared by City Engr. G. N. Hatfield.

BIDS RECEIVED AND CONTRACTS AWARDED.

(*Indicates Contracts Awarded.)

N. Y., Albany.—Following proposals for improvement of following highways were received by State Comn. of Highways:

Road No. 1508, Washington Village, Orange Co., 2.48 mi. (engineer's estimate, \$66,779.75)—Monticello Cons. Co., Inc., Monticello, N. Y., \$64,001.80.

Road No. 5646, Moriches-Center Moriches, Suffolk Co., 3.3 mi. (engineer's estimate, \$125,309)—Edward M. Underhill & Son, Glen Cove, N. Y., \$118,300; Anaroc Eng. & Contg. Co., New York City, \$121,429.45.

Road No. 5637, Whitehall-Dresden Center, Pt. 2, Washington Co., 2.60 mi. (engineer's estimate, \$104,330)—Thos. F. Shaughnessy, Albany, N. Y., \$96,030.

Road No. 5648, Whitehall-Dresden, Pt. 2, Washington Co., 3.93 mi. (engineer's estimate, \$154,197)—Adam F. Shafer, Schenectady, N. Y., \$145,566.25; Wm. W. Bronk, Hudson Falls, N. Y., \$152,822.

Road No. 1171, Afton-Coventry, Pt. 1, and Afton-Bettsburg, Chenango Co., 7.12 mi. (engineer's estimate, \$130,286.35)—Lane Cons. Corp., Meriden, Conn., \$119,917.75; I. M. Ludington Co., Rochester, N. Y., \$129,015.85.

Road No. 1473, Otselle-Smyrna, Pt. 1, Chenango Co., 3.06 mi. (engineer's estimate, \$91,059.85)—F. J. Foote, Nunda, N. Y., \$80,605.60; W. L. Lawton, Glens Falls, N. Y., \$89,624.70.

Road No. 1313, Lafayetteville-Pine Plains-Winchell, Pt. 1, Dutchess Co., 6.86 mi. (engineer's estimate, \$58,789.56)—A. C. Sternburg, West Hartford, Conn., \$57,636.55.

Road No. 1336, West River, Erie Co., 5.19 mi. (engineer's estimate, \$99,076.30)—C. A. Landell & John Nealans, Buffalo, N. Y., \$95,547.75; F. W. Knickenburgh, Buffalo, N. Y., \$98,601.80.

Road No. 5588-A, Kaaterskill Clove, Greene Co., 3.95 mi. (engineers' estimate, \$58,262.50)—John J. Guinan Contg. Co., Brooklyn, N. Y., \$57,662.50; The Foundation Co., New York City, \$58,162.75.

Road No. 5618, Carthage-Antwerp, Jefferson Co., 4.05 mi. (engineer's estimate, \$61,669.68)—W. T. Thayer & Co., Chateaugay, N. Y., \$60,839.64.

Road No. 1426, Sandy Creek-Smartville, Oswego Co., 6.36 mi. (engineer's estimate, \$90,804.86)—Guy B. Dickison, Syracuse, N. Y., \$95,726.80.

Road No. 1408-A, Three Mile Point-Springfield Center-Warren, Otsego Co., 8.13 mi. (engineer's estimate, \$350,990)—Dale Engineering Co., Utica, N. Y., \$329,811; MacArthur Bros. Co., New York City, \$350,833.

Road No. 1421, Center Berlin-Petersburg, Rensselaer Co., 7.20 mi. (engineer's estimate, \$96,148)—The Foundation Co., New York City, \$95,999.

Road No. 1474, Kanona-Prattsburg, Pt. 2, Steuben Co., 4.98 mi. (engineer's estimate, \$97,811)—Atlanta Cons. Co., Atlanta, N. Y., \$94,195.51; Greenfield Cons. Co., Hornell, N. Y., \$94,982.25.

Road No. 1463, Liberty-Woodbourne, Pt. 2, Sullivan Co., 5.63 mi. (engineer's estimate, \$136,906)—DeGraft & Hogeboom, Inc., Kingston, N. Y., \$123,802.80; Armstrong & Trowbridge, Middletown, N. Y., \$127,424.

Road No. 1478, Forestburg-Orange Co. Line, Sullivan Co., 4.01 mi. (engineer's estimate, \$89,557)—Jackson Brothers, Cuddebackville, N. Y., \$85,679; Russell Hull, Highland Mills, N. Y., \$97,848.

Road No. 1457, Lake St.-Ridge St. and Harrison Ave., Westchester Co., 4.62 mi. (engineer's estimate, \$59,813)—Wilkes-Casey Eng. &—Contg. Co., New Rochelle, N. Y., \$57,647.20; Louis Petrillo, Mt. Vernon, N. Y., \$59,702.80.

SEWERAGE.

Ida., Rexbury.—City Council decided unanimously to proceed with plans for installing sewer system and additional fire fighting apparatus for Rexbury. Huddleson & Fiero, engineers, of Salt Lake, were awarded contract for the engineering.

Minn., Breckenridge.—City receiving bids building sewers in various streets, involving 5,728 ft. 8-36-in. sanitary sewers and 10,594 ft. 8-24-in. storm sewers, 42 manholes and two flush tanks. About \$26,000. R. R. Waite, Clk.

Mont., Park City.—Yellowstone Co. contemplates drainage system. F. E. Williams, Billings, Co. Audr.

O., Georgetown.—See "Water Supply."

O., Hamilton.—City Engr. Frank E. Weaver has submitted plans for Prospect Hill sanitary sewer district; estimated cost, \$67,000. Legislation for improvement of four streets by construction of sewers and sidewalks also passed Council.

O., Middletown.—Engr. Morrison has submitted estimates for sewer construction on 14 streets, involving expenditure of \$28,421.91. To assist this work City Comn. took action to issue \$20,000 worth of sewer bonds.

WATER SUPPLY.

Ida., McCammon.—Village will vote Sept. 20 on issuing water bonds to amount of \$35,000.

Neb., Lincoln.—T. H. Berg, City Clk., soon lets contract laying water mains and fire hydrants in Fire Dist. No. 2, involving 18,660 ft. 4-8-in. cast iron piping, 6,300 cu. yd. earth excavation and 22 hydrants. About \$30,000. G. W. Bates, City Engr.

Neb., York.—City contemplates municipal water works plant. Estimate, \$85,000.

N. D., Hankinson.—City Council petitioned to install water works system and sewerage.

O., Georgetown.—Preliminary steps toward construction of water works plant and installation of complete sewer system is being taken by Council. Bond issue will soon be submitted.

O., Newark.—Vote will be submitted to people at November election for approval of infiltration plant.

S. D., Belle Fourche.—City will pipe water from springs on William Schmidt Ranch in Spearfish Valley, 12 mi. from here, by gravity, fall of several hundred feet.

S. D., DeSmet.—City of DeSmet contemplates issuing bonds, about \$15,000, for standpipe in connection with local water works system.

S. D., Mobridge.—Resolution has been adopted to construct service water mains on certain streets. Plans with City Auditor.

Tex., Del Rio.—An issue of 5½ per cent water works bonds to amount of \$94,000 has been registered with State Comptroller.

Wash., Wenatchee.—In order to secure adequate supply of pure water for domestic and irrigation uses, an attempt will be made to revive water district authorized by legislature in 1913. This district will include practically all of Wenatchee Valley, between Leavenworth and Wenatchee. Bond issue of between \$2,000,000 and \$4,000,000 was contemplated at time the district was authorized.